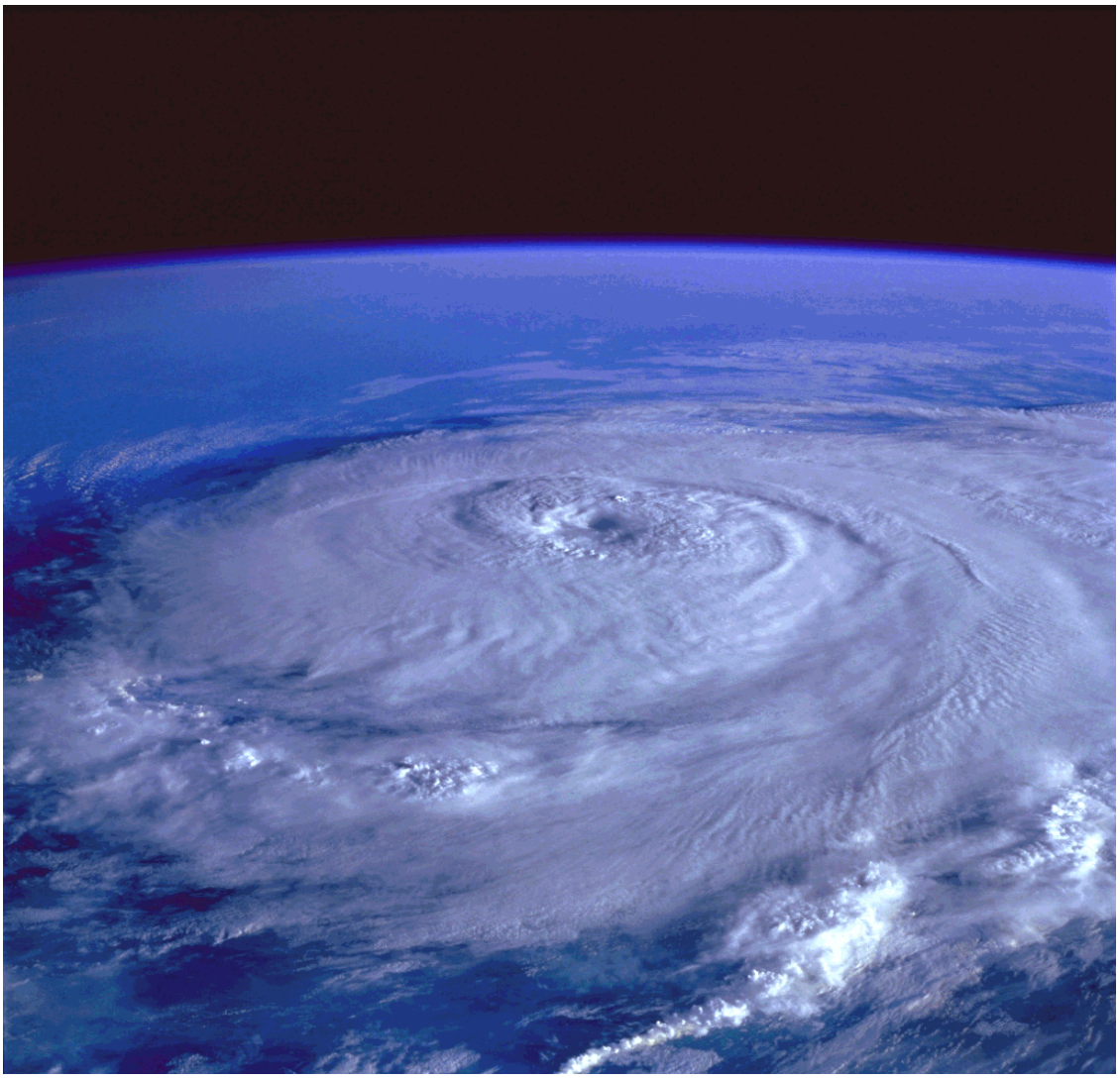
HURRTRAK & Global Tracker
User's Manual



Professional Hurricane/Typhoon Tracking and Analysis System

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HURRTRAK EM/Pro 2012

HURRTRAK RM/Pro 2012

Global Tracker EM/Pro 2012

Global Tracker RM/Pro 2012

HURRTRAK Advanced 2012

Users Guide

- Getting Started
- System Components
- FAQ
- Technical Support

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Getting Started:

Welcome to the Hurricane/Tropical Cyclone Tracking Systems from PC Weather Products!

About this documentation

This documentation covers the functions and features of the HURRTRAK EM/Pro, HURRTRAK RM/Pro and Hurrtrak Advanced systems. Items specific to RM/Pro and Hurrtrak Advanced will be shown in **red** while items unique to Hurrtrak Advanced will be shown in **green**. Other differences will be noted as required.

ONLINE Video Training

While this documentation is an excellent way to become more familiar with the software, we strongly suggest that you go through the online training which is available on the web at http://www.pcwp.com/training.html. There are over 16 hours of training modularized in a manner which allows the trainee to cover the various topics at their own pace. Access to these modules is free because we want everyone to take this training.

Introduction

The hurricane tracking products from PC Weather Products represent the most advanced and easy to use Tropical Cyclone Tracking and Analysis Systems available. It has assisted emergency planning professionals and risk managers around the world for years.

Our software products, HURRTRAK RM/Pro and HURRTRAK EM/Pro offer an advanced set of functions and capabilities related to the analysis of Atlantic tropical systems as well as their potential impact to land/sea areas. HURRTRAK-ONLINE is the company's on-line service which provides all of the latest National Hurricane Center / JTWC / NOAA information, via an Internet connection, to the HURRTRAK Systems. In addition, PC Weather Products offers Global Tropical Cyclone Tracking Systems which track and analyze tropical cyclones around the world.

The main components of the system are Graphical and Reporting.

Graphical:

Highly detailed tracking charts
Ability to show counties and roadways on charts
Graphical representation of the storm's eye, eyewall, gale, storm and hurricane force
Ability to plot storm track on satellite or radar tracking charts
Wind Field" analysis that displays the likely wind speed and wind direction conditions at any point
Ability to display the NHC forecast path on any chart
Ability to display a storm's forecasted position & wind field at any hour
Ability to calculate/display a climatology based forecast
Display the areas of hurricane and tropical storm watches and warnings
Display the storm's past and forecasted wind band analysis
Display the average forecast error along with the official NHC forecast
Graphically depict internally calculated Strike Probabilities
Animate the storm's past and forecasted motion
Ability to print historical tracks on the same tracking chart as a current storm
SLOSH Inundation Analysis
SLOSH MOM and MEOW Inundation Analysis

Reporting/Decision Support:

Ability to compute a Location Impact Summary report
Ability to compute a detailed Location Impact Analysis report
Historical analysis program included to analyze past storm patterns
RiskAlert feature
Email Alerts
Automatically create and email summary reports and other automation outputs for a set of locations.
Create a Location Impact Summary Report for a large number of locations
Calculate a county 'impact analysis" which analyzes the storm impact by numbers of people and households
Display hourly wind profiles for selected locations
Maintain EM user "diary" documenting the emergency actions taken
Display internally calculated Strike Probabilities for a set of locations
Display wind probability report
Display Surge Probability report
Enhanced Decision Support capabilities with action point and decision arc support
"What IF capabilities"
Zip Code Analysis
Ability to define up to 10 custom county / zip code fields used in the impact summary report
Advanced Wind Estimation
Damage Estimate Report

Other:

Ability to customize the application skin and tracking chart colors
Ability to add/change any location in the vast 20,000 location database
Ability to define location groups
Text size, font and color can be customized

You will learn more about these and other system features in the following pages.

System Requirements

To use the system, the minimal requirements are:

- A PC with at least 4 GB of RAM
- Hard disk space required: 5 GB
- Windows XP, VISTA, Release 7
- A Pentium class processor with a CD Drive
- An Internet connection

Installation

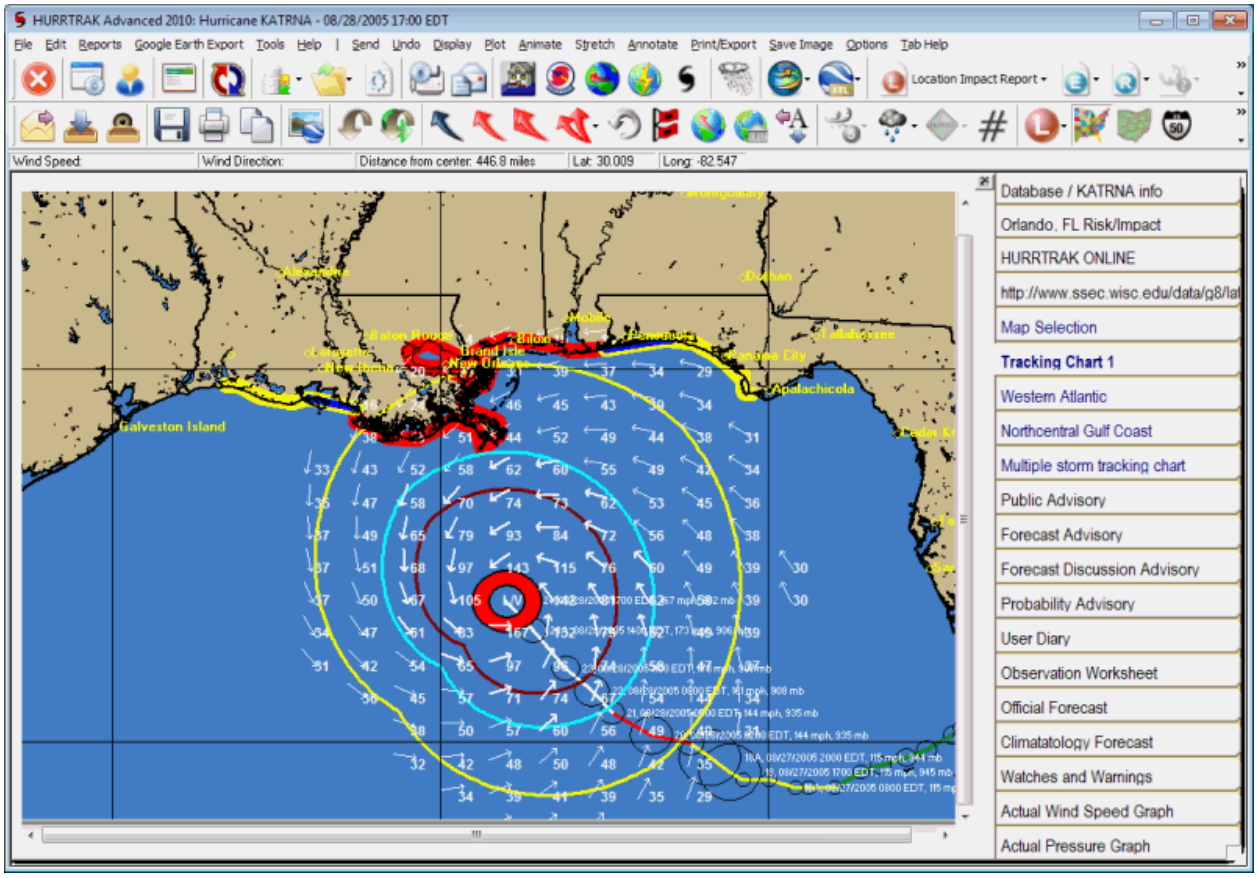
1. If a CD was shipped, insert CD into your computer CDROM drive.
2. Browse the CD if shipped or, if downloaded, locate the install.exe file.
3. Follow the install directions entering the unlock key when requested. It is usually best to copy and paste this key, if possible, to avoid key entry errors. The install key is all numeric.
4. When the installation is complete, reboot.
5. If the instructions call for the installation of a 2nd CD, please follow them.

Notes: The installation key that was shipped/sent with the order is required to install the system, please make a note of it.

You are now ready to start using the system. Let's review each of the system's main components.

SYSTEM COMPONENTS

HURRICANE TRACKING



This is the "heart" of the system. It is the Hurricane / Tropical Cyclone Tracking & Analysis component. It is designed to track current storms and analyze their past and forecast movement.

The "Tab Interface" places all of the storm graphics, text and report data on individual tabs. Many of the tabs (like advisory data, wind speed graphs, etc.) are automatically created for the user. Others (reports, special graphics…) … are created by a user action… while there are additional tabs that will "create/update" themselves when the system is started or the data is updated via Hurrtrak Online. See APPENDIX S: User Interface Considerations on page 325 for more information.

We will then review the system in two sections.

- **First, we will cover all of the system's menu/toolbar functions in detail. In many cases, these functions will create output that necessitates the creation/display of a new tab.**

- **Then, we will describe every possible "information tab" and detail the options available.**

Let's first examine the Standard (always there) Menu Options.

Standard Menu Commands:

FILE
View Email Outbox
Database
New Storm
Open Storm
Delete (storm name)
Rename (storm name)
Copy Storm
Export Wind Data
Export to Shape File
Rainfall Forecast
QuickPlot
System Setup
Database Backup
Custom Map Maker
Send Email Message
SloshView
H*Wind Display
Hurricane Reconnaissance
Hurricane History
Model Plot
Location Import Utility
Inland Wind Model
Advisory Ticker
Send Email Message
Print Setup
Display Log
Exit

EDIT
User Diary
Observations
Official Forecast
Model Forecast
Climatology Forecast
NHC Advisories
Watches & Warnings

REPORTS
Process Email Alert
Process Automation
Process Summary Report
Forecast E-Z Report
Forecast Location Strike Probabilities
Forecast Location Wind Probabilities
Forecast Location Wind Profile
Forecast Location Surge Probabilities
Forecast Location Risk/Impact
Forecast Location Executive Summary
Forecast County Wind Profile
Forecast Zip Code Wind Profile
Forecast Damage Estimate Report
Forecast Map Select Location Wind Profile
Actual Location Wind Profile
Actual County Wind Profile
Actual Zip Code Wind Profile
Actual Map Select Location Wind Profile
Actual Damage Estimate Report

GOOGLE EARTH EXPORT
Current Storm Track & Observations
Current Wind Radii (poly)
Current Wind Field (points)
Current Wind Pattern (poly)
Current Watch and Warning area
Official Forecast path (track and points)
Official Forecast Average Error
Latest Climate Forecast
Latest Model Plots
Latest Rainfall Forecast
Latest Animation Forecast
Official Forecast Wind Radii
Official Forecast Wind Field Grid
Official Forecast Wind Pattern
Rainfall Forecast (latest)
Latest Animated Forecast
Latest Animated Wind Arrow Forecast
Latest Wind Band Forecast
Report (Impact Summary)
County Impact Summary
Zip Code Impact Summary
All above selected outputs (Open, Save, Email, Save to Email Outbox)
Prior Official Forecast Track
Prior Official Forecast Average Error
Official Forecast Wind Radii
Official Forecast Wind Field Grid
Official Forecast Wind Pattern
Animation
Wind Band
All Preferred Outputs
External Google Earth data

TOOLS
Setup "What if" scenario
Post Storm Analysis
Setup Summary Report
Setup Email Alerts
Setup Automations
User Preferences
Setup Application Appearance

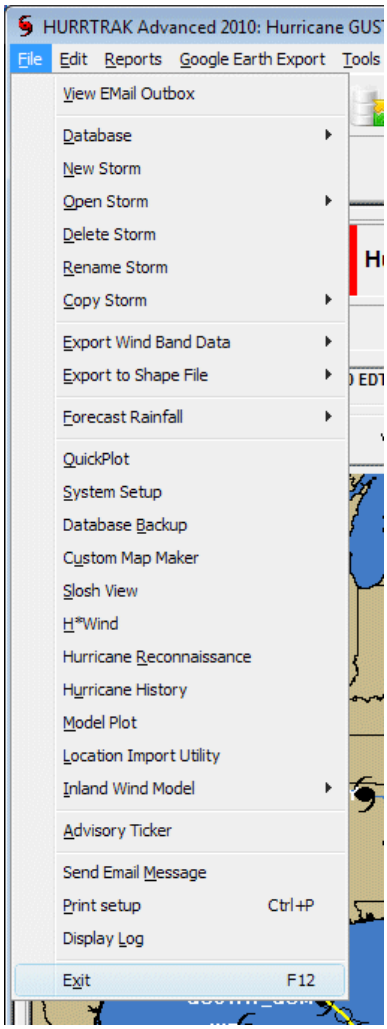
HELP

Information Tabs:

The HURRTRAK system information is presented using a "tab style" interface. This allows the user to easily and quickly create and view information. The tabs available on the system are:

General Information Tab
Risk / Impact Tab
HURRTRAK ONLINE Tab
Internet Tab
ExpertEase (Analysis) Tab
Tracking Chart Select Tab
Variable Tracking Chart
Fixed/Favorite Tracking
Wind Band Analysis
Strike/Wind Probability Analysis
Forecast Rainfall Analysis
Forecast Rainfall Thematic
Animation
Forecast Position
3D Wind Surface
Latest Tropical Weather Outlook
Public Advisory
Forecast Advisory
Forecast Discussion
Strike Probabilities
User Comments (Diary)
Observation Worksheet Table
Official Forecast Table
Climate Forecast Table
Watch and Warning Table
Wind Speed Graph
Central Pressure Graph
Location Summary Report
County Summary Report
Zip Code Summary Report
Detailed Location/County/Zip Hourly Report
County/Zip Impact Analysis Report
Strike/Wind Probability Report
Detailed Location/County/Zip Wind Graph
Detailed Location/County/Zip Flood Index Graph
County Wind Thematic

FILE MENU OPTIONS



View Email Outbox

This option allows you to view the contents of the Email Outbox and optionally Email its contents. See page 154 for more information on this topic.

Database

This option allows you to easily add or change storm databases.

New Storm

This option is rarely used because, with a Hurrtrak Online subscription, new storm data is automatically added to the storm database. If you do want to create a storm, this option will prompt you for a storm name (up to 12 characters) and then take you to a data entry screen.

Open Storm

This option allows you to open an existing storm in the current storm database.

Delete Storm

This option deletes the current storm and all its associated data.

Rename Storm

This option renames the current storm. This is useful when a tropical depression becomes a named storm.

Copy Storm

This option allows the user to copy the current storm to the same or different database. This may be useful when creating an "exercise" storm where you would like to use the current storm as its "base".

Export Wind Data

This option allows the user to export the actual, forecast or both actual and forecast wind band data into a ArcInfo™ GIS importable format. See APPENDIX L: GIS Wind Band Export on page 302 for more information.

Export to Shape file

This option allows the user to export various storm, actual and forecast, parameters to ESRI ™ Shape File Format. See page APPENDIX T7: Shape File Export on page 341 for more information.

Forecast Rainfall

This option displays forecast rainfall on a county thematic chart for the next 3 days. You can display either each 24 hours period or a cumulative 3 day total. This option IS available even if no storm is loaded. You are required to either turn automated downloading on or manually select “retrieve forecast rainfall data” via the Hurrtrak Online tab.

QuickPlot

This option takes the user to the QuickPlot function.

System Setup

This option takes the user to the system setup function. See page 178 for more information.

Database Backup

This option takes the user to the database maintenance portion of the system.

Custom Map Maker

This option takes the user to the custom map creation function. See page 210 for more information.

SloshView

This option takes the user to the Slosh View program. See page 233 for more information.

H*Wind

This option takes the user to the H*wind display program. See page 250 for more information.

Hurricane Reconnaissance

This option takes the user to the Hurricane Reconnaissance program. See page 250 for more details.

Hurricane History

This option takes the user to the Hurricane History program. See page 216 for more information.

Model Plot

This option takes the user to the Model Plot program. See page 258 for more information

Location Import Utility

This option takes the user to the Location Import program. It will force the Hurrtrak Tracking program to exit. See page 262 for more information.

Inland Wind Model

This option takes the user to the Inland Wind Model function. See page 267 for more information.

Advisory Ticker

This option rolls the text of the Public Advisory across the bottom of the screen.

Send Email Message

This option allows the user to send a general email message not associated to a particular storm.

Print Setup

This option allows the user to set up the printer for printing. Many print options throughout the system allow the user to setup before printing initiates.

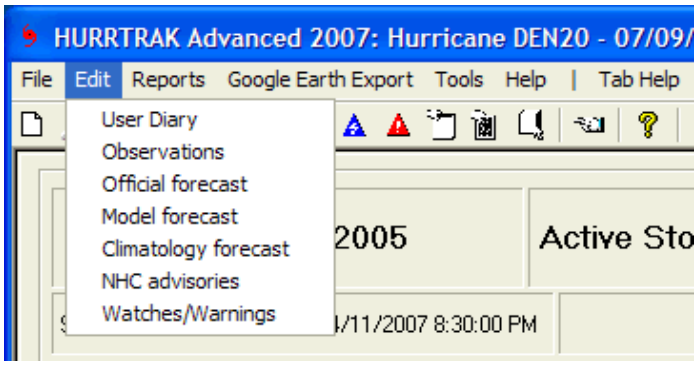
Display log

This option allows the user to view system log messages. They are sometimes useful when debugging automatic operations.

Exit

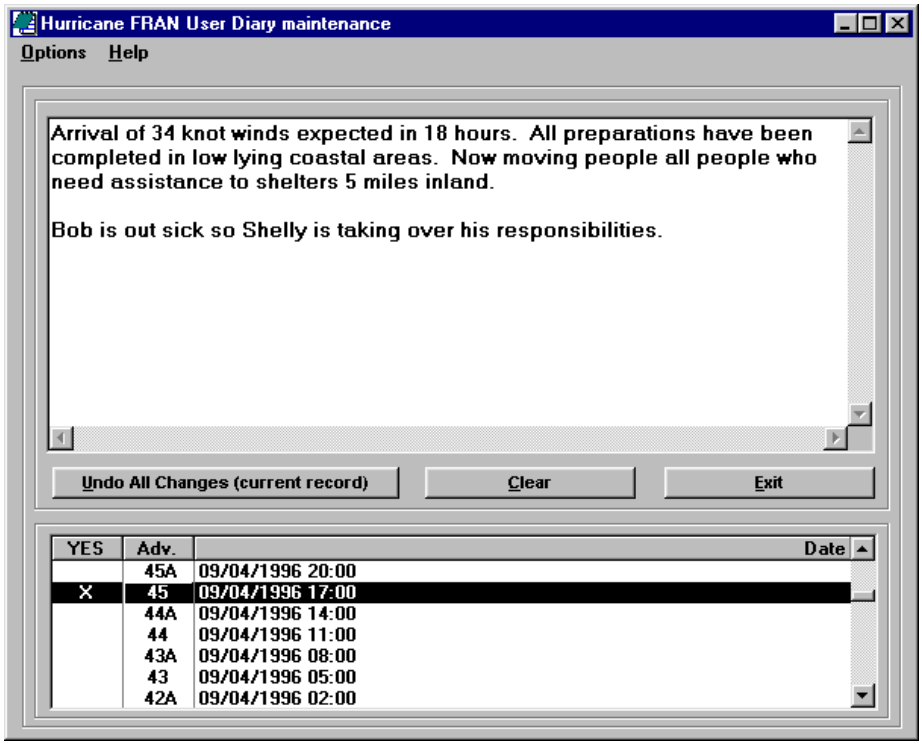
This option exits the system. The current storm will automatically be reloaded when it is started again.

EDIT (DATA MAINTENANCE)



User Diary Maintenance

This option allows the user to enter free form comments related to action taken at this advisory.


Hurricane FRAN User Diary maintenance
Options
Help
Arrival of 34 knot winds expected in 18 hours. All preparations have been completed in low lying coastal areas. Now moving people all people who need assistance to shelters 5 miles inland.
Bob is out sick so Shelly is taking over his responsibilities.
Undo All Changes (current record)
Clear
Exit
YES
Adv.
Date
45A 09/04/1996 20:00
X 45 09/04/1996 17:00
44A 09/04/1996 14:00
44 09/04/1996 11:00
43A 09/04/1996 08:00
43 09/04/1996 05:00
42A 09/04/1996 02:00

This option allows the user to enter free form comments related to action taken at this advisory.

Options Include:

Options - Allows the user to alter the font
Help - Displays the help text

Other commands are Undo all changes, Clear and Exit.

In addition, typical Windows right click options are available (cut, copy, paste)

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Observation Maintenance

<u>This option is not typically used, as Hurrtrak Online updates all of the storm observation information.</u> It does, however, allow the user to enter, change or delete any of the storm's observation data. The observation data shown in the data field boxes is determined by the highlighted observation row at the bottom of the window.

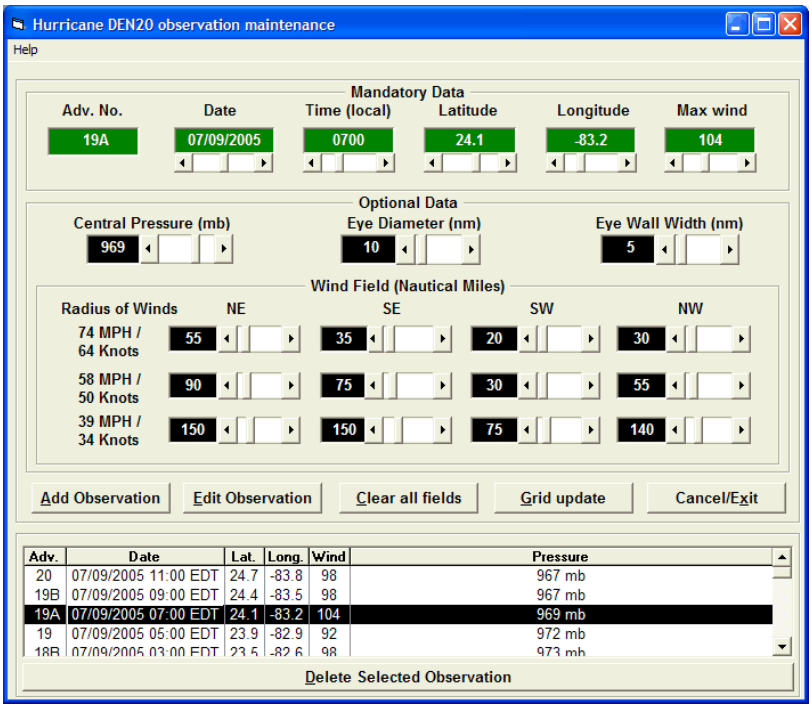


Figure 1

To add new observation data, fill in all of the required data and whatever portion of the optional data you wish, then select **ADD Observation** If you are adding data to an existing storm set, the latest observation information will be pre-loaded into the data field boxes, making for easier data entry.

To edit a prior observation, select that observation row at the bottom of the window, make the necessary changes, then select **EDIT Observation**

To **clear all fields**, select that option.

To perform a **GRID table update**, similar to a spreadsheet, select GRID UPDATE. All changes made in grid mode will be updated into the storm database. Note: No data edit checks are done in GRID mode, so be very careful.

Select **CANCEL/EXIT** to exit out of this update function.

To delete a prior observation, select that observation at the bottom of the window and then select DELETE OBSERVATION. Remember deleting an observation will also delete all of its associated data. This includes the official forecast, climatology forecast and advisory information for that observation.

There are two "levels" of wind field data entry, standard and advanced. This is set in the user preferences option. While the advanced is more complex it allows you to do a more detailed analysis of the storm's wind field than the standard.

The data entry window contain the following data

Adv. No. - The advisory number of the observation.

Date - The date of the observation either in UTC or local. The date/time preference is set in the system setup portion of the system.

Time - The time of the observation either in UTC or local time. The date/time preference is set in the system setup portion of the system. (HHMM)

Latitude - The latitude position of the center of the storm entered in decimal degrees. Northern Latitudes are positive.

Longitude - The longitude position of the center of the storm entered in decimal degrees. WESTERN LONGITUDES ARE ENTERED AS A NEGATIVE.

Max wind - The maximum wind speed of the storm. The unit used (MPH or KTS) is set within the UOM options function.

Central Pressure - The central pressure of the storm. Pressure must be entered in millibars.

Eye Diameter - The diameter of the eye (nautical miles). The eye is assumed to be closed and circular. Default values are 18 nautical miles. If there is no eye, a zero should be entered in this field.

Eye Wall Width - The width of the eye wall (nautical miles). The default value is 9 nautical miles. Valid range 1 - 100 miles. If there is no eye, a zero should be entered in this field.

Radius of 74 MPH / 64 Knot Winds (NE Sector) - The distance (nautical miles) that hurricane force winds extend from the center of the storm on the Northeast side of the storm.

Radius of 74 MPH / 64 Knot Winds (SE Sector) - The distance (nautical miles) that hurricane force winds extend from the center of the storm on the Southeast side of the storm.

Radius of 74 MPH / 64 Knot Winds (SW Sector) - The distance (nautical miles) that hurricane force winds extend from the center of the storm on the Southwest side of the storm.

Radius of 74 MPH / 64 Knot Winds (NW Sector) - The distance (nautical miles) that hurricane force winds extend from the center of the storm on the Northwest side of the storm.

Radius of 58 MPH / 50 Knot Winds (NE Sector) - The distance (nautical miles) that 50 knot winds extend from the center of the storm on the Northeast side of the storm.

Radius of 58 MPH / 50 Knot Winds (SE Sector) - The distance (nautical miles) that 50 knot winds extend from the center of the storm on the Southeast side of the storm.

Radius of 58 MPH / 50 Knot Winds (SW Sector) - The distance (nautical miles) that 50 knot winds extend from the center of the storm on the Southwest side of the storm.

Radius of 58 MPH / 50 Knot Winds (NW Sector) - The distance (nautical miles) that 50 knot winds extend from the center of the storm on the Northwest side of the storm.

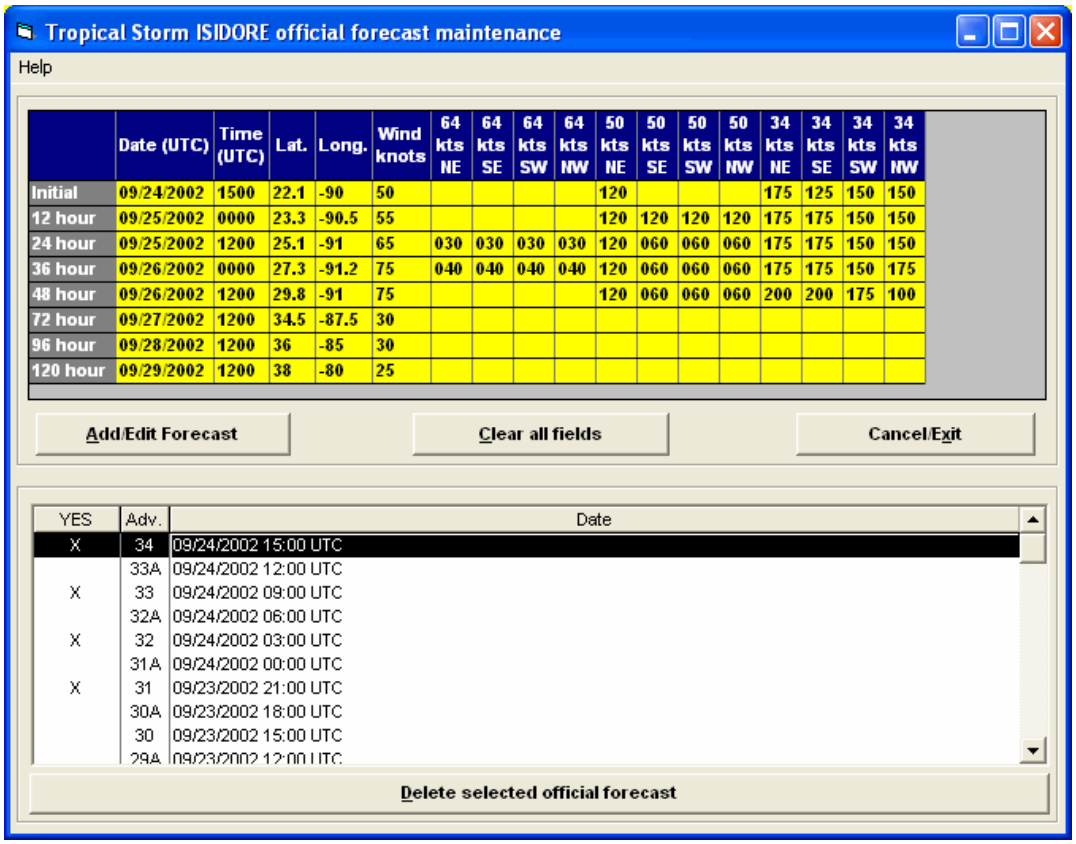
Radius of 39 MPH / 34 Knot Winds (NE Sector) - The distance (nautical miles) that 34 knot winds extend from the center of the storm on the Northeast side of the storm.

Radius of 39 MPH / 34 Knot Winds (SE Sector) - The distance (nautical miles) that 34 knot winds extend from the center of the storm on the Southeast side of the storm.

Radius of 39 MPH / 34 Knot Winds (SW Sector) - The distance (nautical miles) that 34 knot winds extend from the center of the storm on the Southwest side of the storm.

Radius of 39 MPH / 34 Knot Winds (NW Sector) - The distance (nautical miles) that 34 knot winds extend from the center of the storm on the Northwest side of the storm.

Official Forecast Maintenance



	Date (UTC)	Time (UTC)	Lat.	Long.	Wind knots	64 kts NE	64 kts SE	64 kts SW	64 kts NW	50 kts NE	50 kts SE	50 kts SW	50 kts NW	34 kts NE	34 kts SE	34 kts SW	34 kts NW
Initial	09/24/2002	1500	22.1	-90	50					120				175	125	150	150
12 hour	09/25/2002	0000	23.3	-90.5	55					120	120	120	120	175	175	150	150
24 hour	09/25/2002	1200	25.1	-91	65	030	030	030	030	120	060	060	060	175	175	150	150
36 hour	09/26/2002	0000	27.3	-91.2	75	040	040	040	040	120	060	060	060	175	175	150	175
48 hour	09/26/2002	1200	29.8	-91	75					120	060	060	060	200	200	175	100
72 hour	09/27/2002	1200	34.5	-87.5	30												
96 hour	09/28/2002	1200	36	-85	30												
120 hour	09/29/2002	1200	38	-80	25												

YES	Adv.	Date
X	34	09/24/2002 15:00 UTC
	33A	09/24/2002 12:00 UTC
X	33	09/24/2002 09:00 UTC
	32A	09/24/2002 06:00 UTC
X	32	09/24/2002 03:00 UTC
	31A	09/24/2002 00:00 UTC
X	31	09/23/2002 21:00 UTC
	30A	09/23/2002 18:00 UTC
	30	09/23/2002 15:00 UTC
	29A	09/23/2002 12:00 UTC

This option is seldom used, as Hurrtrak Online downloads all of the storm forecast information. However, it does allow the user to enter, change or delete any of the storm's official forecast data. The forecast data shown in the data table is determined by the highlighted forecast row at the bottom of the window.

To **Add a new forecast**, enter the forecast advisory information and select Add / Edit forecast.

To **Edit an existing forecast**, change the forecast information and select Add / Edit forecast.

To **Delete a forecast**, highlight that row in the table at the end of the window and select Delete forecast.

The data fields for each forecast position from initial to 120 hours:

Date - Forecast date (UTC) entered as MM/DD/YY.

Time - Forecast time (UTC) entered as HHMM.

Latitude - Forecast latitude. North latitudes are positive.

Longitude - Forecast longitude. West longitudes are negative.

Max Wind Speed - Forecast maximum wind speed (knots).

Area of 64 knot winds - Forecast radius of 64 knot (Hurricane force) winds provided by quadrant (NE, SE, SW, NW). All distances are in nautical miles.

Area of 50 knot winds - Forecast radius of 50 knot winds provided by quadrant (NE, SE, SW, NW). All

distances are in nautical miles.

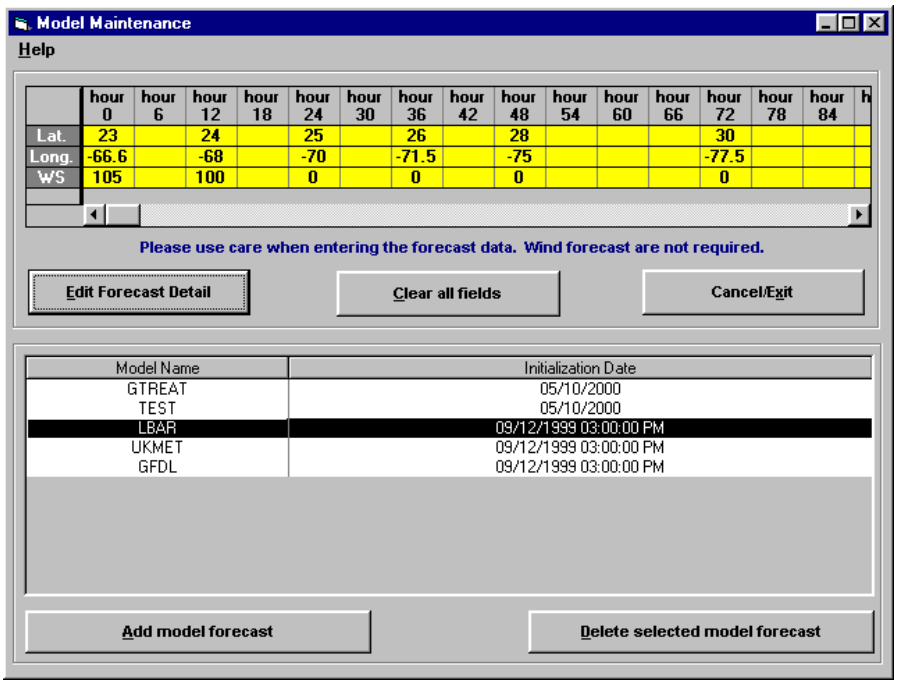
Area of 34 knot winds - Forecast radius of 34 knot (tropical storm force) winds provided by quadrant (NE, SE, SW, NW). All distances are in nautical miles.

Options Available:

Help - Displays this help text.

Clear all fields - Clears all of the forecast data fields.

Hurricane Model Forecast


Model Maintenance
Help
hour 0 | hour 6 | hour 12 | hour 18 | hour 24 | hour 30 | hour 36 | hour 42 | hour 48 | hour 54 | hour 60 | hour 66 | hour 72 | hour 78 | hour 84
Lat. 23 24 25 26 28 30
Long. -66.6 -68 -70 -71.5 -75 -77.5
WS 105 100 0 0 0 0
Please use care when entering the forecast data. Wind forecast are not required.
Edit Forecast Detail
Clear all fields
Cancel/Exit
Model Name
Initialization Date
GTREAT 05/10/2000
TEST 05/10/2000
LBAR 09/12/1999 03:00:00 PM
UKMET 09/12/1999 03:00:00 PM
GFDL 09/12/1999 03:00:00 PM
Add model forecast
Delete selected model forecast

HURRTRAK ONLINE imports many of the hurricane model forecast data into the system. This option only needs to be used if the user wants to include other forecast model information. The forecast data shown in the data table is determined by the highlighted forecast row at the bottom of the window.

To **Add a new forecast**, select Add Model forecast. You will be prompted for the name of the model, initial Data/Time (ENTERED IN UTC TIME ONLY), and initial latitude and longitude. After entering this data, a forecast record will be shown on the grid. It will need to be edited to include forecast information.

To **Edit an existing forecast**, change the forecast information and select Edit forecast detail.

To **Delete a forecast**, highlight that row in the table at the bottom and select Delete Selected Model Forecast.

The data fields for each forecast position from initial to 120 hours (not all columns need to be entered):

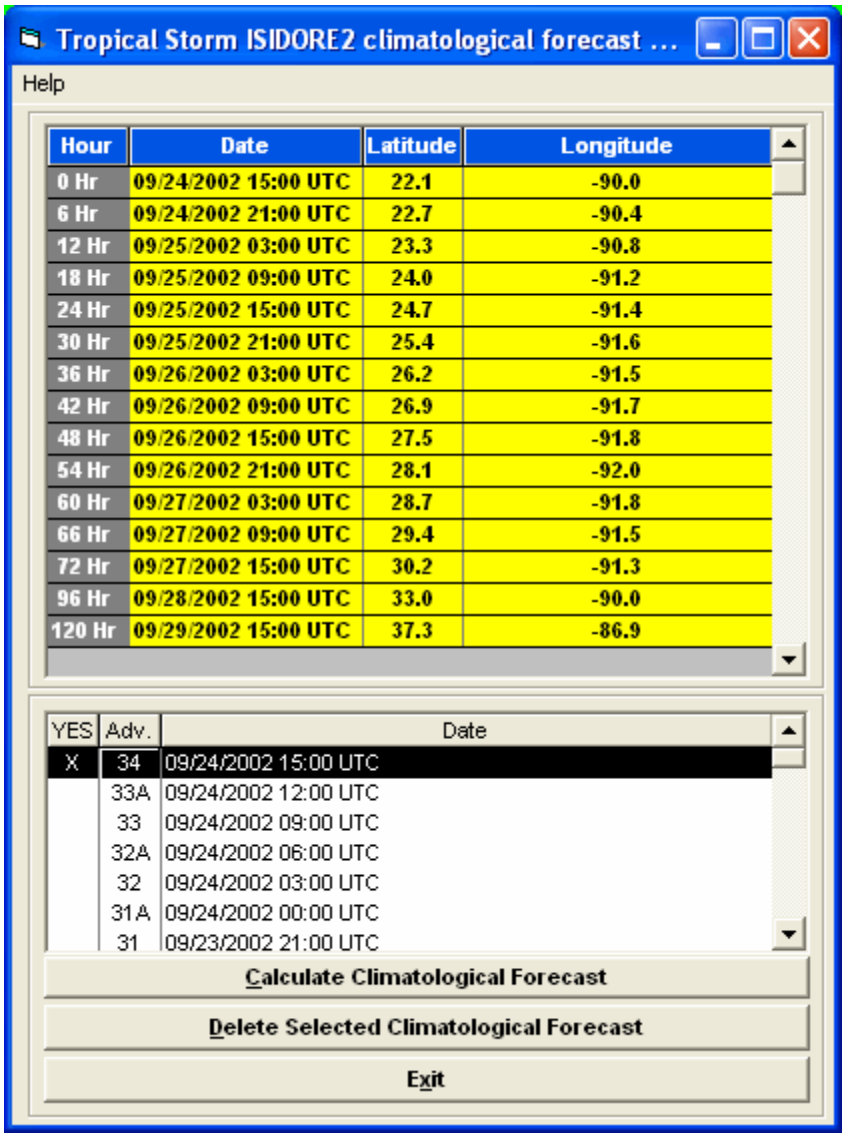
Latitude - Forecast latitude. North latitudes are positive.

Longitude - Forecast longitude. West longitudes are negative.

Max Wind Speed - Forecast maximum wind speed (knots). This data is usually not included in the hurricane model forecast.

Options Available:
Help - Displays this help text.
Clear all fields - Clears all of the forecast data fields.

Climatology Forecast Maintenance



This option allows the user to calculate or delete any of the storm's calculated climatology forecast data. The forecast data shown in the data table is determined by the highlighted forecast row at the bottom of the window.

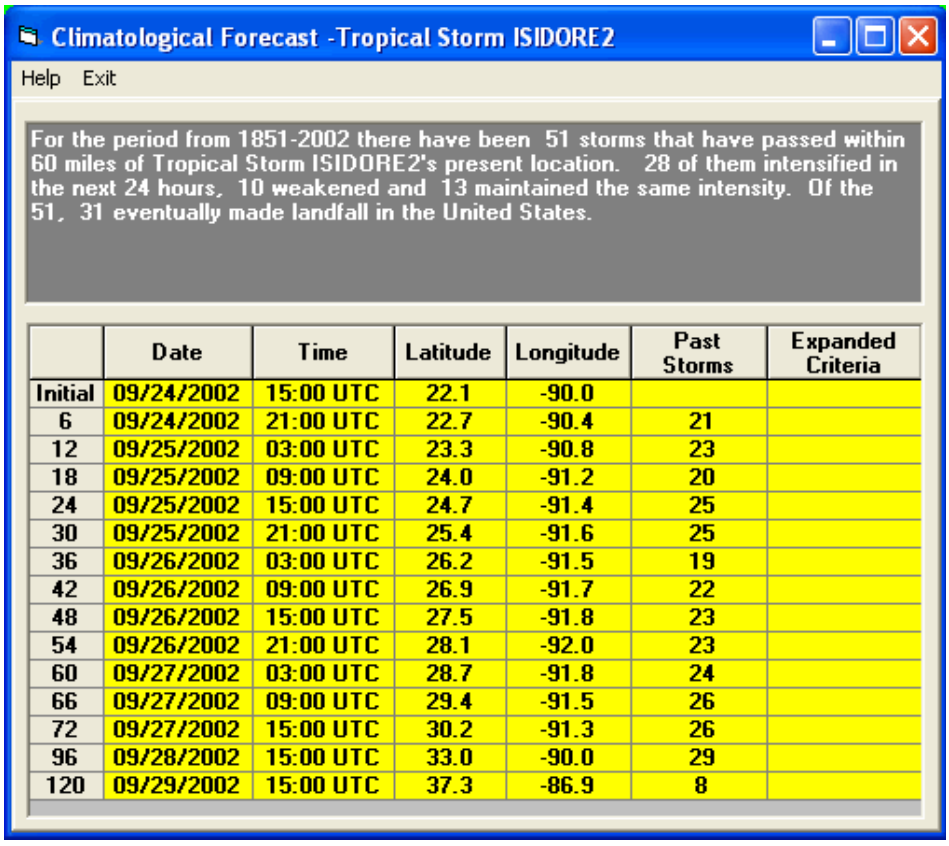
To **Calculate a new forecast**, select the advisories row at the bottom of the windows and select Calculate Climatological Forecast. This will display a new window, as shown on the next page that displays the forecast calculations along with the option to save. When the forecast is saved, it will then appear as a new entry in this window's table.

To **Delete a forecast**, highlight that row in the table at the end of the window and select Delete Climatological Forecast.

Note: This forecast can also be calculated interactively while performing the PLOT - Climatology Forecast function by selecting the **"Latest"** option.

Calculate Climatological Forecast

The calculate Climatological Forecast option analyzes the storm's current movement and all "similar" storms in the historical database to compute a blended climatological forecast track. The historical database is analyzed for every 6 hour forecast position to determine the next forecast position. This is iterated (repeated) 14 times to compute a 120 hour forecast track. When the forecast calculation is complete, forecast comments are displayed along with forecast positions, number of similar storms found, and whether the comparison criteria needed to be expanded to include a larger sample of storms.


Climatological Forecast -Tropical Storm ISIDORE2
Help Exit
For the period from 1851-2002 there have been 51 storms that have passed within 60 miles of Tropical Storm ISIDORE2's present location. 28 of them intensified in the next 24 hours, 10 weakened and 13 maintained the same intensity. Of the 51, 31 eventually made landfall in the United States.

	Date	Time	Latitude	Longitude	Past Storms	Expanded Criteria
Initial	09/24/2002	15:00 UTC	22.1	-90.0		
6	09/24/2002	21:00 UTC	22.7	-90.4	21	
12	09/25/2002	03:00 UTC	23.3	-90.8	23	
18	09/25/2002	09:00 UTC	24.0	-91.2	20	
24	09/25/2002	15:00 UTC	24.7	-91.4	25	
30	09/25/2002	21:00 UTC	25.4	-91.6	25	
36	09/26/2002	03:00 UTC	26.2	-91.5	19	
42	09/26/2002	09:00 UTC	26.9	-91.7	22	
48	09/26/2002	15:00 UTC	27.5	-91.8	23	
54	09/26/2002	21:00 UTC	28.1	-92.0	23	
60	09/27/2002	03:00 UTC	28.7	-91.8	24	
66	09/27/2002	09:00 UTC	29.4	-91.5	26	
72	09/27/2002	15:00 UTC	30.2	-91.3	26	
96	09/28/2002	15:00 UTC	33.0	-90.0	29	
120	09/29/2002	15:00 UTC	37.3	-86.9	8	

Figure 2

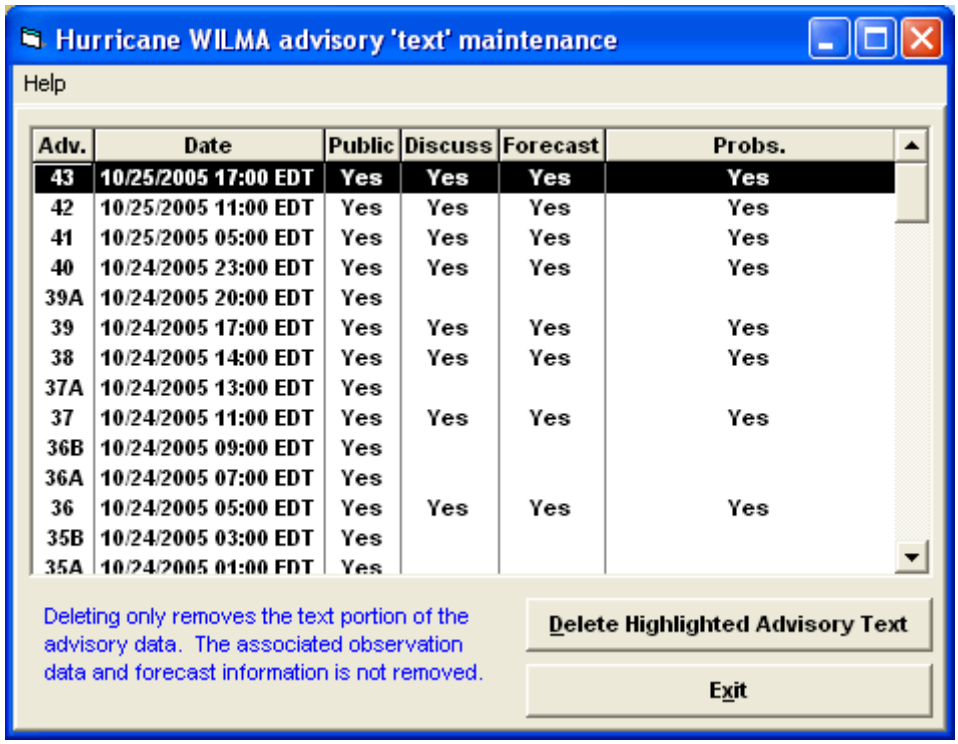
Options available:

Help - Displays this help text.

Print - Prints the contents of the forecast to the Windows printer.

NOTE: The Climatological forecast is based solely on the historical database information. Movement of past storms, while sometimes a good predictor of the movement of a current storm, should not be relied upon.

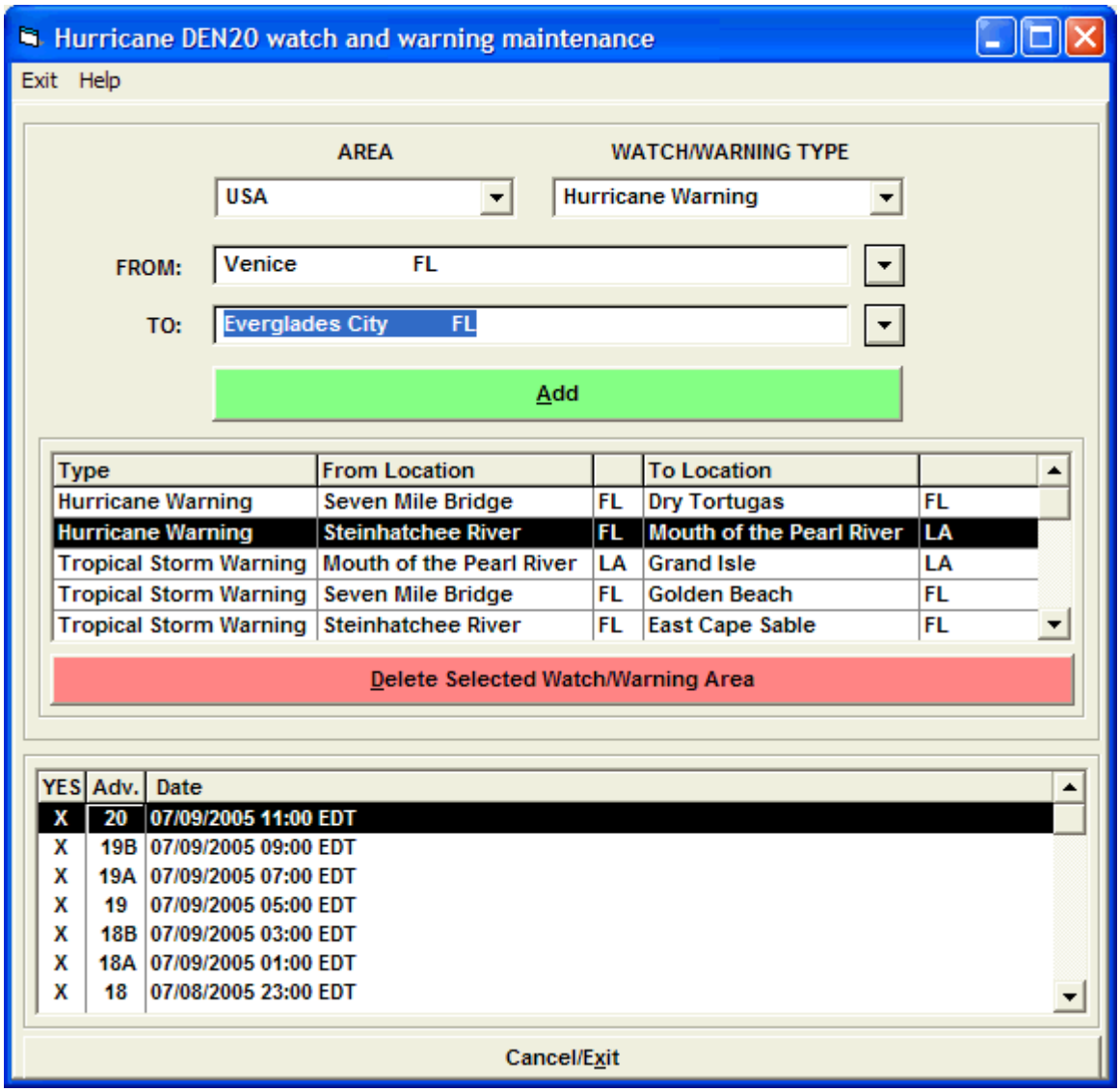
NHC Advisory Maintenance


Hurricane WILMA advisory 'text' maintenance
Help
Adv. Date Public Discuss Forecast Probs.
43 10/25/2005 17:00 EDT Yes Yes Yes Yes
42 10/25/2005 11:00 EDT Yes Yes Yes Yes
41 10/25/2005 05:00 EDT Yes Yes Yes Yes
40 10/24/2005 23:00 EDT Yes Yes Yes Yes
39A 10/24/2005 20:00 EDT Yes
39 10/24/2005 17:00 EDT Yes Yes Yes Yes
38 10/24/2005 14:00 EDT Yes Yes Yes Yes
37A 10/24/2005 13:00 EDT Yes
37 10/24/2005 11:00 EDT Yes Yes Yes Yes
36B 10/24/2005 09:00 EDT Yes
36A 10/24/2005 07:00 EDT Yes
36 10/24/2005 05:00 EDT Yes Yes Yes Yes
35B 10/24/2005 03:00 EDT Yes
Deleting only removes the text portion of the advisory data. The associated observation data and forecast information is not removed.
Delete Highlighted Advisory Text
Exit

This option typically applies to older PCs with limited hard drive space.

This option allows the user to delete the text portion of the advisory. The associated observation data is not affected. To delete, highlight the desired advisory and select Delete Advisory Text. This option only applies to users of the HURRTRAK ONLINE service who have all of the text advisories automatically added to the HURRTRAK database.

Watch and Warning Maintenance


Hurricane DEN20 watch and warning maintenance
Exit Help
AREA
WATCH/WARNING TYPE
USA
Hurricane Warning
FROM:
Venice FL
TO:
Everglades City FL
Add
Type | From Location | | To Location |
Hurricane Warning | Seven Mile Bridge | FL | Dry Tortugas | FL
Hurricane Warning | Steinhatchee River | FL | Mouth of the Pearl River | LA
Tropical Storm Warning | Mouth of the Pearl River | LA | Grand Isle | LA
Tropical Storm Warning | Seven Mile Bridge | FL | Golden Beach | FL
Tropical Storm Warning | Steinhatchee River | FL | East Cape Sable | FL
Delete Selected Watch/Warning Area
YES | Adv. | Date
X | 20 | 07/09/2005 11:00 EDT
X | 19B | 07/09/2005 09:00 EDT
X | 19A | 07/09/2005 07:00 EDT
X | 19 | 07/09/2005 05:00 EDT
X | 18B | 07/09/2005 03:00 EDT
X | 18A | 07/09/2005 01:00 EDT
X | 18 | 07/08/2005 23:00 EDT
Cancel/Exit

Hurrtrak Online imports the US based watches and warnings. This option allows the user to enter or delete any of the storm's Hurricane Watch and Warning area data. The watch and warning data shown in the top half of the window is determined by the highlighted advisory row at the bottom of the window.

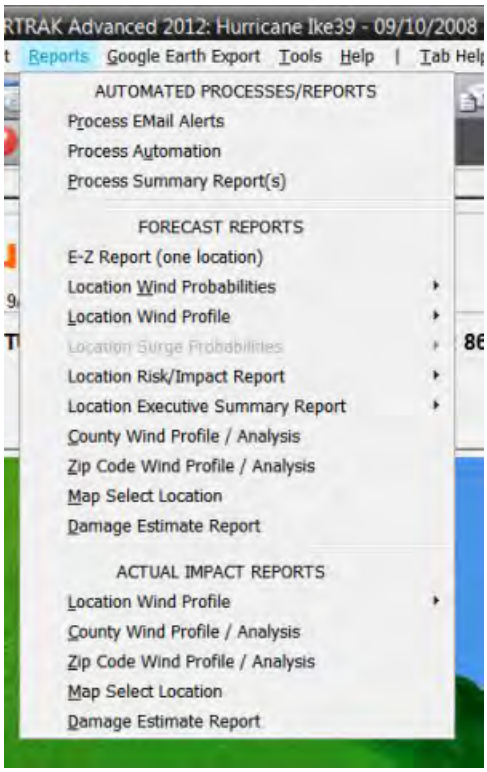
To add new watches and warnings, select the appropriate coastline area, watch/warning type and the from and to points of the watch or warning, and select the ADD button.

To delete a watch or warning, highlight the watch and warning area and select the Delete Highlighted Watch/Warning button.

You may enter as many watches and warnings as required.

The pre-defined set of watch and warning points are maintained in the system setup portion of the system. Please go to page 205 to find out more about how this data is structured.

REPORTS



The Reports Include:

The first 3 selections are in their own category and allow the user to create/test pre-defined Automatic Email Alerts, Automatic Summary Reports and "other" Automatic outputs.

- Process Email Alerts - See page 280 for more information on the capabilities of Email Alerts.
- Process Automation - see page 290 for more information on these outputs.
- Process Summary Report(s) - see page 284 for more information on automatic Summary Reports.

The reports described below are typically shown on an informational tab. Some however are shown in their own print preview type format and are noted as such.

Forecast Reports:

1. E-Z Report (print preview format) – see next page
2. Location Strike Probabilities (see page 148)
3. Location Wind Probabilities (see page 149)
4. Location Wind Profile (see page 138)
5. Location Surge Probabilities (see page 150)
6. Location Risk/Impact Report (see page 172) – (print preview format)
7. Location Executive Report (see page 174) – (print preview format)
8. County Wind Profile / Analysis (see page 141.)
9. Zip code Wind Profile / Analysis (RM/Pro) (see page 143)
10. Map Select Location – see page 32.
11. Damage Estimate Report – see page 339. – (print preview format)

Actual Impact Reports:

Location Wind Profile (see page 138)
County Wind Profile / Analysis (see page 141)

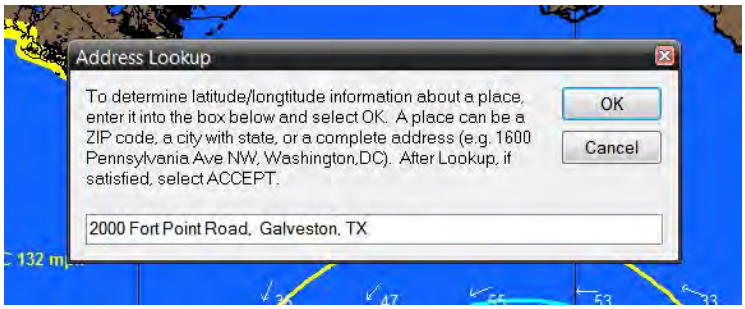
Zip code Wind Profile / Analysis (RM/Pro) (see page 143)
Map Select Location - see page 32.
Damage Estimate Report – see page 339 – (print preview format)

Some of these are described in much more detail on the cross referenced pages noted above.

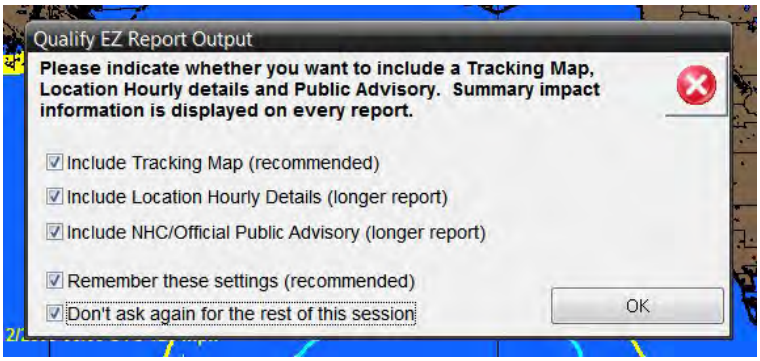
E-Z Report

The E-Z Report was initially designed for new users of the Hurrtrak system to assist them in being immediately productive... by easily creating a forecast impact report for a particular location. In reality, it has turned out to be a useful tool for all levels of users.

When the EZ-Report option is selected, a dialog box will appear prompting the user to enter basic, or detailed, address information.


Address Lookup
To determine latitude/longtitude information about a place, enter it into the box below and select OK. A place can be a ZIP code, a city with state, or a complete address (e.g. 1600 Pennsylvania Ave NW, Washington,DC). After Lookup, if satisfied, select ACCEPT.
OK
Cancel
2000 Fort Point Road, Galveston, TX

The user can enter a zip code, a city/state or a complete address (as shown above).
After finding a valid address, the system will then present the following options screen.


Qualify EZ Report Output
Please indicate whether you want to include a Tracking Map, Location Hourly details and Public Advisory. Summary impact information is displayed on every report.
Include Tracking Map (recommended)
Include Location Hourly Details (longer report)
Include NHC/Official Public Advisory (longer report)
Remember these settings (recommended)
Don't ask again for the rest of this session
OK

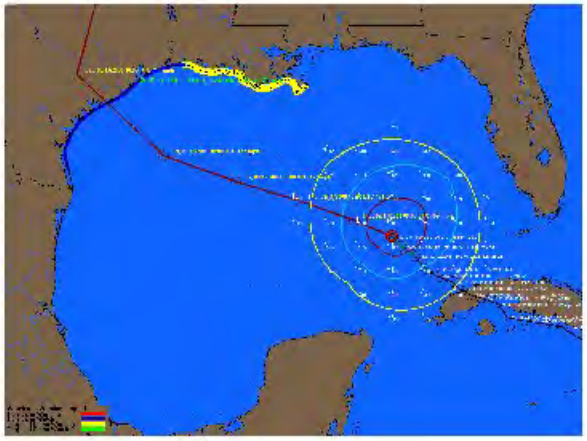
It allows the user to select the portions of the report they would like to include. As indicated above, the report can optionally include a tracking map, the location's hourly impact details (in addition to the summary impact which is included by default), and the Public Advisory text. By selecting the bottom option, the user will not see this screen again for the remainder of the session.

The report is then created and presented in a print preview PDF format as shown below... from which you can send (e-mail), save as PDF, save to the E-mail outbox, or print. This is a great option for new users and anyone who wants to create ad-hoc type reports.

Print Preview - Adobe PDF

Exit Send (PDF) Save (PDF) Save to EMail Outbox Change Printer Print

1/5



Description of impact to 2000 Fort Point Road, Galveston, TX,

rt Point Road, Galveston, TX, is expected to receive a minor impact from Hurricane Ike39.

Easterly gale force winds should start affecting the area on Saturday, September 13th at 07:00 UTC. The highest wind speeds from Hurricane Ike39 should occur near 07:00 UTC when top sustained winds, from the East, could reach 43 MPH with gusts near 56 MPH. Winds should decrease below gale force 7 hours later.

Sustained winds will fall below gale force after 14:00 UTC and generally be from the Southeast during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.

Some minor residential wind damage may occur from Hurricane Ike39 in rt Point Road, Galveston, TX.

The total rainfall for the rt Point Road, Galveston, TX area over the next 3 days is forecast to be 9. inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

Latest Position: 630 mi. Southeast (122 degrees) of 2000 Fort Point Road, Galveston, TX,

Latitude	Longitude	Motion (mph)	Wind Speed (MPH)	Central Pressure (In.)	74 mph NE	74 mph SE	74 mph SW	74 mph NW	58 mph NE	58 mph SE	58 mph SW	58 mph NW	39 mph NE	39 mph SE	39 mph SW	39 mph NW	Eye diam	Eye wall
24.5	-86.1	318/9	98	28.28	80	40	30	60	150	80	75	110	180	150	120	180	10	5

Wind Probabilities for 2000 Fort Point Road, Galveston, TX,

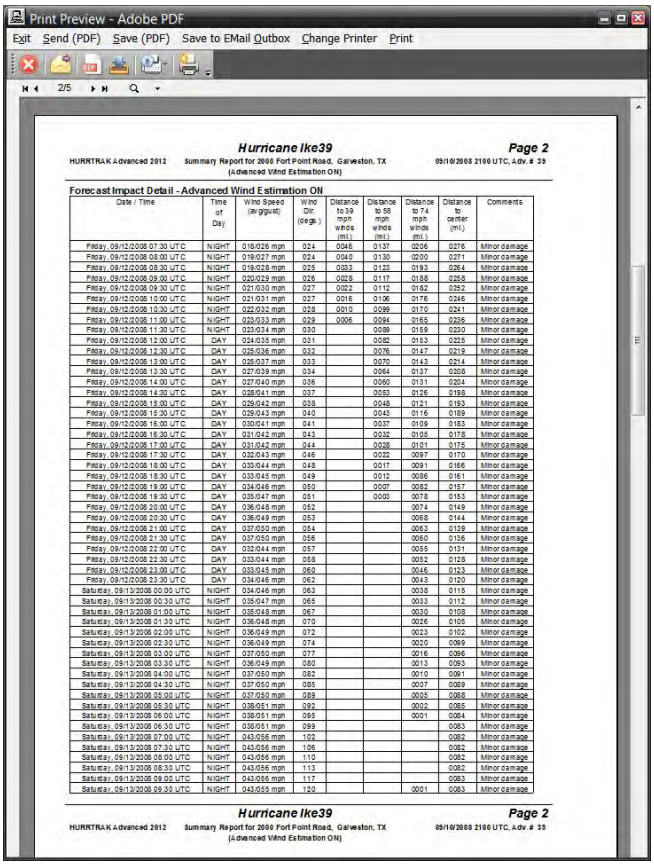
34 Knots (39 mph)	50 Knots (58 mph)	64 Knots (74 mph)
70.7	43.6	24.2

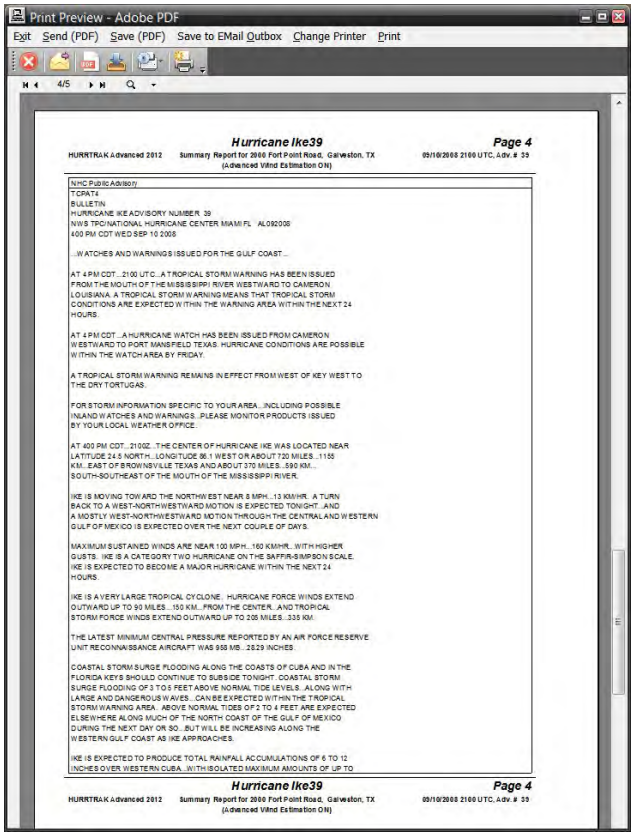
Forecast Impact Summary for rt Point Road, Galveston, TX, - Advanced Wind Estimation ON

Max Wind (avg/gust)	Max Wind Date/Time	CPA	Rain		Arr. hrs.	Time of arrival	Time of departure	Duration
43 / 56 mph.	Saturday, 09/13/2008 07:00 UTC	82 mi.	9.0"	39 mph	58	09/13/2008 07:00 UTC	09/13/2008 14:00 UTC	8

Hurricane Ike39 **Page 1**

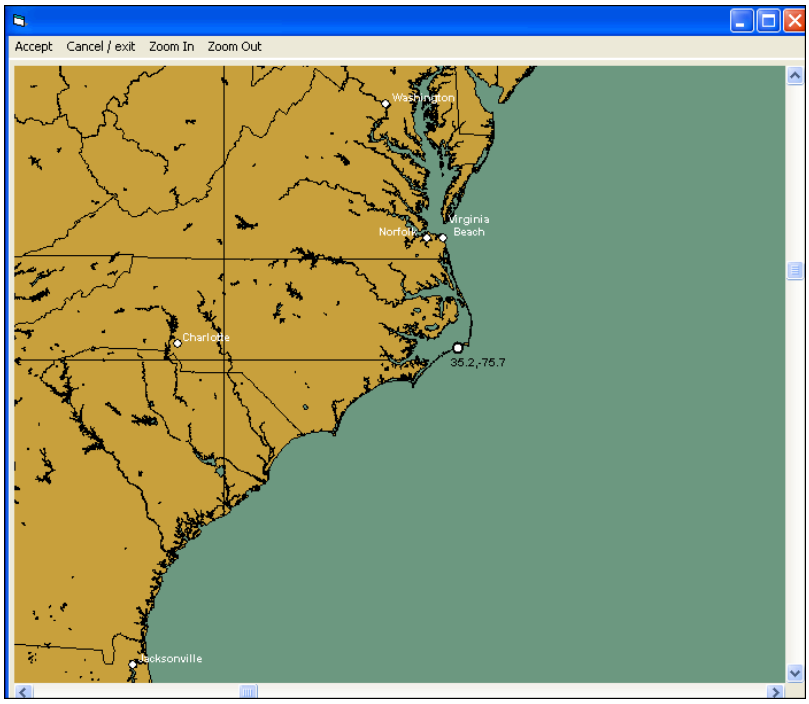
HURRTRAK Advanced 2012 Summary Report for 2000 Fort Point Road, Galveston, TX (Advanced Wind Estimation ON) 09/10/2008 2100 UTC, Adv.# 39


Print Preview - Adobe PDF
Exit Send (PDF) Save (PDF) Save to EMail Outbox Change Printer Print
2/5
Hurricane Ike39
Page 2
HURRTRAK Advanced 2012 Summary Report for 2000 Fort Point Road, Galveston, TX 09/10/2008 2100 UTC, Adv.# 39
(Advanced Wind Estimation ON)
Forecast Impact Detail - Advanced Wind Estimation ON
Date / Time | Time of Day | Wind Speed (avg/gust) | Wind Dir. (degs.) | Distance to 39 mph winds (mi.) | Distance to 58 mph winds (mi.) | Distance to 74 mph winds (mi.) | Distance to center (mi.) | Comments
Friday, 09/12/2008 07:30 UTC | NIGHT | 018/026 mph | 024 | 0046 | 0137 | 0206 | 0276 | Minor damage
Friday, 09/12/2008 08:00 UTC | NIGHT | 019/027 mph | 024 | 0049 | 0139 | 0209 | 0271 | Minor damage
Friday, 09/12/2008 08:30 UTC | NIGHT | 019/028 mph | 025 | 0053 | 0123 | 0193 | 0264 | Minor damage
Friday, 09/12/2008 09:00 UTC | NIGHT | 020/029 mph | 026 | 0028 | 0117 | 0188 | 0258 | Minor damage
Friday, 09/12/2008 09:30 UTC | NIGHT | 021/030 mph | 027 | 0022 | 0112 | 0182 | 0252 | Minor damage
Friday, 09/12/2008 10:00 UTC | NIGHT | 021/031 mph | 027 | 0016 | 0106 | 0176 | 0246 | Minor damage
Friday, 09/12/2008 10:30 UTC | NIGHT | 022/032 mph | 028 | 0010 | 0099 | 0170 | 0241 | Minor damage
Friday, 09/12/2008 11:00 UTC | NIGHT | 023/033 mph | 029 | 0006 | 0094 | 0165 | 0236 | Minor damage
Friday, 09/12/2008 11:30 UTC | NIGHT | 023/034 mph | 030 | | 0089 | 0159 | 0230 | Minor damage
Friday, 09/12/2008 12:00 UTC | DAY | 024/035 mph | 031 | | 0082 | 0153 | 0225 | Minor damage
Friday, 09/12/2008 12:30 UTC | DAY | 025/036 mph | 032 | | 0076 | 0147 | 0219 | Minor damage
Friday, 09/12/2008 13:00 UTC | DAY | 026/037 mph | 033 | | 0070 | 0143 | 0214 | Minor damage
Friday, 09/12/2008 13:30 UTC | DAY | 027/039 mph | 034 | | 0064 | 0137 | 0208 | Minor damage
Friday, 09/12/2008 14:00 UTC | DAY | 027/040 mph | 036 | | 0060 | 0131 | 0204 | Minor damage
Friday, 09/12/2008 14:30 UTC | DAY | 028/041 mph | 037 | | 0053 | 0126 | 0198 | Minor damage
Friday, 09/12/2008 15:00 UTC | DAY | 029/042 mph | 038 | | 0048 | 0121 | 0193 | Minor damage
Friday, 09/12/2008 15:30 UTC | DAY | 029/043 mph | 040 | | 0043 | 0116 | 0189 | Minor damage
Friday, 09/12/2008 16:00 UTC | DAY | 030/041 mph | 041 | | 0037 | 0109 | 0183 | Minor damage
Friday, 09/12/2008 16:30 UTC | DAY | 031/042 mph | 043 | | 0032 | 0105 | 0178 | Minor damage
Friday, 09/12/2008 17:00 UTC | DAY | 031/042 mph | 044 | | 0028 | 0101 | 0175 | Minor damage
Friday, 09/12/2008 17:30 UTC | DAY | 032/043 mph | 046 | | 0022 | 0097 | 0170 | Minor damage
Friday, 09/12/2008 18:00 UTC | DAY | 033/044 mph | 048 | | 0017 | 0091 | 0166 | Minor damage
Friday, 09/12/2008 18:30 UTC | DAY | 033/045 mph | 049 | | 0012 | 0086 | 0161 | Minor damage
Friday, 09/12/2008 19:00 UTC | DAY | 034/046 mph | 050 | | 0007 | 0082 | 0157 | Minor damage
Friday, 09/12/2008 19:30 UTC | DAY | 035/047 mph | 051 | | 0003 | 0078 | 0153 | Minor damage
Friday, 09/12/2008 20:00 UTC | DAY | 036/048 mph | 052 | | | 0074 | 0149 | Minor damage
Friday, 09/12/2008 20:30 UTC | DAY | 036/049 mph | 053 | | | 0068 | 0144 | Minor damage
Friday, 09/12/2008 21:00 UTC | DAY | 037/050 mph | 054 | | | 0063 | 0139 | Minor damage
Friday, 09/12/2008 21:30 UTC | DAY | 037/050 mph | 056 | | | 0060 | 0136 | Minor damage
Friday, 09/12/2008 22:00 UTC | DAY | 032/044 mph | 057 | | | 0055 | 0131 | Minor damage
Friday, 09/12/2008 22:30 UTC | DAY | 033/044 mph | 058 | | | 0052 | 0128 | Minor damage
Friday, 09/12/2008 23:00 UTC | DAY | 033/045 mph | 060 | | | 0046 | 0123 | Minor damage
Friday, 09/12/2008 23:30 UTC | DAY | 034/046 mph | 062 | | | 0043 | 0120 | Minor damage
Saturday, 09/13/2008 00:00 UTC | NIGHT | 034/046 mph | 063 | | | 0038 | 0115 | Minor damage
Saturday, 09/13/2008 00:30 UTC | NIGHT | 035/047 mph | 065 | | | 0033 | 0112 | Minor damage
Saturday, 09/13/2008 01:00 UTC | NIGHT | 035/048 mph | 067 | | | 0030 | 0108 | Minor damage
Saturday, 09/13/2008 01:30 UTC | NIGHT | 036/048 mph | 070 | | | 0026 | 0105 | Minor damage
Saturday, 09/13/2008 02:00 UTC | NIGHT | 036/049 mph | 072 | | | 0023 | 0102 | Minor damage
Saturday, 09/13/2008 02:30 UTC | NIGHT | 036/049 mph | 074 | | | 0020 | 0099 | Minor damage
Saturday, 09/13/2008 03:00 UTC | NIGHT | 037/050 mph | 077 | | | 0016 | 0096 | Minor damage
Saturday, 09/13/2008 03:30 UTC | NIGHT | 036/049 mph | 080 | | | 0013 | 0093 | Minor damage
Saturday, 09/13/2008 04:00 UTC | NIGHT | 037/050 mph | 082 | | | 0010 | 0091 | Minor damage
Saturday, 09/13/2008 04:30 UTC | NIGHT | 037/050 mph | 085 | | | 0007 | 0089 | Minor damage
Saturday, 09/13/2008 05:00 UTC | NIGHT | 037/050 mph | 089 | | | 0005 | 0088 | Minor damage
Saturday, 09/13/2008 05:30 UTC | NIGHT | 038/051 mph | 092 | | | 0002 | 0085 | Minor damage
Saturday, 09/13/2008 06:00 UTC | NIGHT | 038/051 mph | 095 | | | 0001 | 0084 | Minor damage
Saturday, 09/13/2008 06:30 UTC | NIGHT | 038/051 mph | 099 | | | | 0083 | Minor damage
Saturday, 09/13/2008 07:00 UTC | NIGHT | 043/056 mph | 102 | | | | 0082 | Minor damage
Saturday, 09/13/2008 07:30 UTC | NIGHT | 043/056 mph | 106 | | | | 0082 | Minor damage
Saturday, 09/13/2008 08:00 UTC | NIGHT | 043/056 mph | 110 | | | | 0082 | Minor damage
Saturday, 09/13/2008 08:30 UTC | NIGHT | 043/056 mph | 113 | | | | 0082 | Minor damage
Saturday, 09/13/2008 09:00 UTC | NIGHT | 043/056 mph | 117 | | | | 0083 | Minor damage
Saturday, 09/13/2008 09:30 UTC | NIGHT | 043/055 mph | 120 | | | 0001 | 0083 | Minor damage
Hurricane Ike39
Page 2
HURRTRAK Advanced 2012 Summary Report for 2000 Fort Point Road, Galveston, TX 09/10/2008 2100 UTC, Adv.# 39
(Advanced Wind Estimation ON)

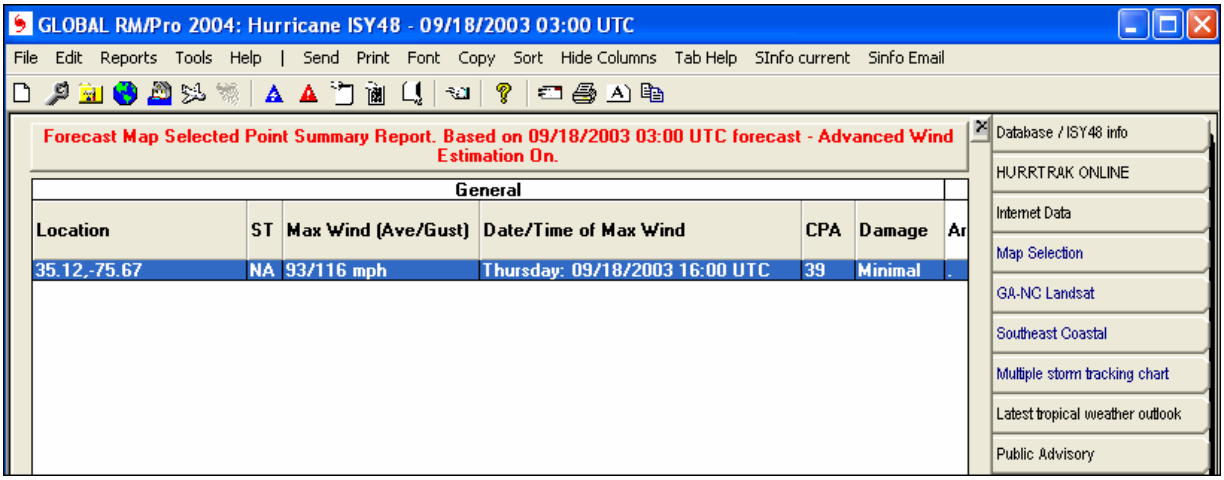

Print Preview - Adobe PDF
Exit Send (PDF) Save (PDF) Save to EMail Outbox Change Printer Print
4/5
Hurricane Ike39
Page 4
HURRTRAK Advanced 2012 Summary Report for 2000 Fort Point Road, Galveston, TX 09/10/2008 2100 UTC, Adv.# 39
(Advanced Wind Estimation ON)
NHC Public Advisory
TCPAT4
BULLETIN
HURRICANE IKE ADVISORY NUMBER 39
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL092008
400 PM CDT WED SEP 10 2008
...WATCHES AND WARNINGS ISSUED FOR THE GULF COAST...
AT 4 PM CDT...2100 UTC...A TROPICAL STORM WARNING HAS BEEN ISSUED FROM THE MOUTH OF THE MISSISSIPPI RIVER WESTWARD TO CAMERON LOUISIANA. A TROPICAL STORM WARNING MEANS THAT TROPICAL STORM CONDITIONS ARE EXPECTED WITHIN THE WARNING AREA WITHIN THE NEXT 24 HOURS.
AT 4 PM CDT...A HURRICANE WATCH HAS BEEN ISSUED FROM CAMERON WESTWARD TO PORT MANSFIELD TEXAS. HURRICANE CONDITIONS ARE POSSIBLE WITHIN THE WATCH AREA BY FRIDAY.
A TROPICAL STORM WARNING REMAINS IN EFFECT FROM WEST OF KEY WEST TO THE DRY TORTUGAS.
FOR STORM INFORMATION SPECIFIC TO YOUR AREA...INCLUDING POSSIBLE INLAND WATCHES AND WARNINGS...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL WEATHER OFFICE.
AT 400 PM CDT...2100Z...THE CENTER OF HURRICANE IKE WAS LOCATED NEAR LATITUDE 24.5 NORTH...LONGITUDE 86.1 WEST OR ABOUT 720 MILES...1155 KM...EAST OF BROWNSVILLE TEXAS AND ABOUT 370 MILES...590 KM... SOUTH-SOUTHEAST OF THE MOUTH OF THE MISSISSIPPI RIVER.
IKE IS MOVING TOWARD THE NORTHWEST NEAR 8 MPH...13 KM/HR. A TURN BACK TO A WEST-NORTHWESTWARD MOTION IS EXPECTED TONIGHT...AND A MOSTLY WEST-NORTHWESTWARD MOTION THROUGH THE CENTRAL AND WESTERN GULF OF MEXICO IS EXPECTED OVER THE NEXT COUPLE OF DAYS.
MAXIMUM SUSTAINED WINDS ARE NEAR 100 MPH...160 KM/HR...WITH HIGHER GUSTS. IKE IS A CATEGORY TWO HURRICANE ON THE SAFFIR-SIMPSON SCALE. IKE IS EXPECTED TO BECOME A MAJOR HURRICANE WITHIN THE NEXT 24 HOURS.
IKE IS A VERY LARGE TROPICAL CYCLONE. HURRICANE FORCE WINDS EXTEND OUTWARD UP TO 90 MILES...150 KM...FROM THE CENTER...AND TROPICAL STORM FORCE WINDS EXTEND OUTWARD UP TO 205 MILES...335 KM.
THE LATEST MINIMUM CENTRAL PRESSURE REPORTED BY AN AIR FORCE RESERVE UNIT RECONNAISSANCE AIRCRAFT WAS 958 MB...28.29 INCHES.
COASTAL STORM SURGE FLOODING ALONG THE COASTS OF CUBA AND IN THE FLORIDA KEYS SHOULD CONTINUE TO SUBSIDE TONIGHT. COASTAL STORM SURGE FLOODING OF 3 TO 5 FEET ABOVE NORMAL TIDE LEVELS...ALONG WITH LARGE AND DANGEROUS WAVES...CAN BE EXPECTED WITHIN THE TROPICAL STORM WARNING AREA. ABOVE NORMAL TIDES OF 2 TO 4 FEET ARE EXPECTED ELSEWHERE ALONG MUCH OF THE NORTH COAST OF THE GULF OF MEXICO DURING THE NEXT DAY OR SO...BUT WILL BE INCREASING ALONG THE WESTERN GULF COAST AS IKE APPROACHES.
IKE IS EXPECTED TO PRODUCE TOTAL RAINFALL ACCUMULATIONS OF 6 TO 12 INCHES OVER WESTERN CUBA...WITH ISOLATED MAXIMUM AMOUNTS OF UP TO
Hurricane Ike39
Page 4
HURRTRAK Advanced 2012 Summary Report for 2000 Fort Point Road, Galveston, TX 09/10/2008 2100 UTC, Adv.# 39
(Advanced Wind Estimation ON)

Report Map Select

When the Forecast or Actual Map Select Location Report is selected, the user is presented with a map where a point can be select by left clicking your mouse button.



When satisfied with the point selected, choose the Accept option and the location report tab will be displayed and will support all of the functions of the location group summary impact report as shown on page 138 .



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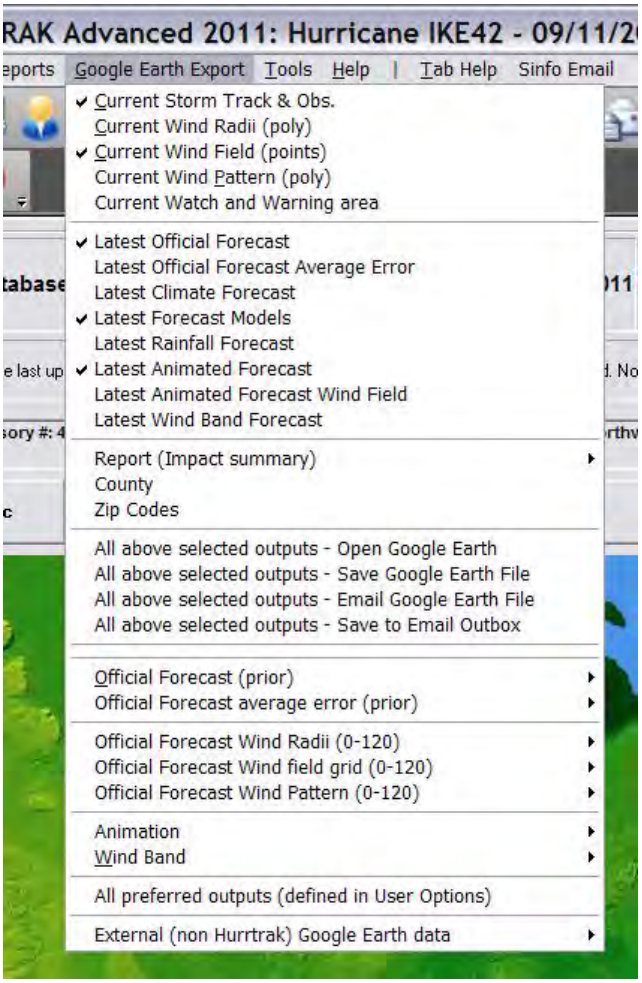
GOOGLE EARTH EXPORT


RAK Advanced 2011: Hurricane IKE42 - 09/11/2
eports
Google Earth Export
Tools
Help
Tab Help
Sinfo Email
Current Storm Track & Obs.
Current Wind Radii (poly)
Current Wind Field (points)
Current Wind Pattern (poly)
Current Watch and Warning area
Latest Official Forecast
Latest Official Forecast Average Error
Latest Climate Forecast
Latest Forecast Models
Latest Rainfall Forecast
Latest Animated Forecast
Latest Animated Forecast Wind Field
Latest Wind Band Forecast
Report (Impact summary)
County
Zip Codes
All above selected outputs - Open Google Earth
All above selected outputs - Save Google Earth File
All above selected outputs - Email Google Earth File
All above selected outputs - Save to Email Outbox
Official Forecast (prior)
Official Forecast average error (prior)
Official Forecast Wind Radii (0-120)
Official Forecast Wind field grid (0-120)
Official Forecast Wind Pattern (0-120)
Animation
Wind Band
All preferred outputs (defined in User Options)
External (non Hurrtrak) Google Earth data

The Google Earth export menu option exports KML to Google Earth (GE) and is available whenever there is an open storm. The data that is available for export is dependent on how current the storm forecast and other data is… but most of the export options are typically available. For most of the selections the user must mark each type of output they would like to create before selecting one of the creation options (Open (GE), Save, Send, Save to E-mail outbox). The available type of data you can export are listed below.

The options below must be "marked" for creation and then created, as one KML/KMZ file, by the "ALL above selected outputs" selections.

Current Storm Track and Observations – This option exports the storm track and observations as KML for Google Earth (GE).

Current Wind Radii – When selecting this option, the system will export KML which contains up to 3 polygons representing the current 34, 50 and 64 knot wind areas.

Current Wind Field – This option will export a “grid” of points across the entire current wind field. When viewed on GE, it shows up as point values or points which can then be interrogated (clicked on). This is controlled by the Hurrtrak User Preferences – General Options.

Current Wind Pattern – This option export up to 10 polygons representing different wind levels of a storm. The levels are is determined via the Wind Pattern Levels tab of the Plotting User Options. Advanced Wind

Estimation (AWE) is not used in this export regardless of the AWE settings elsewhere. This is because AWE wind calculations would invalidate the concept of a polygon.

Current Watch and Warning areas – As the same suggests, this option exports the current NHC watches and warnings.

Official Forecast Path (track and points) – This exports the storm's forecast track and the forecast points. The user can select to export the current or any prior forecast tracks.

Official Forecast Average Error – This option will export an area which represents the forecast's average error. The user can select to export the current or any prior forecast average error. This may take a few seconds to run.

Latest Climate Forecast –When selecting this option, the latest climate forecast will be exported and shown on GE.

Latest Model Forecast –When selecting this option, all of the latest forecast model tracks will be exported and shown on GE.

Latest Rainfall Forecast – This option will exports 3 sets of KML files which represent the forecast rainfall for the next 3 days. They are shown as unfilled polygons.

Latest Animation Forecast – This is a powerful option which allows the user to export the forecast wind radii, and view it using GE's animation capability.

Latest Animated "arrows" Forecast – This allows the user to export the forecast animated wind arrows and view it using GE's animation capability.

Wind Bands – This option allows the user to export the latest forecast wind bands to a 3D KML file for viewing on GE. The creating of this export may take a few minutes depending on the number of levels defined for export. This is controlled in the Hurrtrak User Preferences – General Options.

Report (impact summary) – This is another powerful feature whereby you can export location forecast impact summary data to a point type KML file. When viewed on Google Earth, all of the summary data information is shown with a simple click on that location's point icon.

County Report (impact summary) – This is another powerful feature whereby you can export County forecast impact summary data to a point type KML file. When viewed on Google Earth, all of the summary data information is shown with a simple click on that location's point icon.

Zip Code Report (impact summary) – This is another powerful feature whereby you can export Zip Code forecast impact summary data to a point type KML file. When viewed on Google Earth, all of the summary data information is shown with a simple click on that location's point icon.

ALL above selected outputs (Open Google Earth) - Creates a Google Earth (KML/KMZ) file for all "checked" outputs above ... and then opens Google Earth.

ALL above selected outputs (Save Google Earth File) - Creates a Google Earth (KML/KMZ) file for all "checked" outputs above ... and then saves the file to a specified location.

ALL above selected outputs (EMail Google Earth File) - Creates a Google Earth (KML/KMZ) file for all "checked" outputs above ... and then EMails the file to selected recipients.

ALL above selected outputs (Save to EMail Outbox) - Creates a Google Earth (KML/KMZ) file for all "checked" outputs above ... and then saves the file to the EMail Outbox for later Emailing.

The options below are selected and created one at a time... this is because these selection require additional criteria.

Official Forecast (prior) – This exports the storm's forecast track and the forecast points. The user can select to export the current or any prior forecast tracks.

Official Forecast Average Error – This option will export an area which represents the forecast's average error. The user can select to prior advisories forecast average error. This may take a few seconds to run.

Official Forecast Wind Radii – When selected, the system will export KML which contains up to 3 polygons representing the forecast 34, 50 and 64 knot wind areas… for a specific hour in the forecast.

Official Forecast Wind Field Grid – This option will export a "grid" of points across the entire forecast wind field… at a specific forecast hour. When viewed on GE, it shows up as point values or points which then can be interrogated.

Official Forecast Wind Pattern – This option export up to 10 polygons representing different wind levels of a storm for a specific forecast hour. The levels are is determined via the Wind Pattern Levels tab of the Plotting User Options. Advanced Wind Estimation (AWE) is not used in this export regardless of the AWE settings elsewhere. This is because AWE wind calculations would invalidate the concept of a polygon.

Animation – This is a powerful option which allows the user to export the entire past or forecast wind radii, animated wind arrows and view it using GE's animation capability. The latest version of GE is required to support this capability.

Wind Bands – This option allows the user to export the past or forecast wind bands to a 3D KML file for viewing on GE. The creating of this export may take a few minutes depending on the number of levels defined for export. This is controlled in the Hurrtrak User Preferences – General Options.

All Preferred Outputs – This allows the user to create any/all of the outputs with a single selection. The data that is included with this "batch" export is controlled within the Hurrtrak User Preferences – General Options. Depending on what is included, this option may take a few minutes to complete.

External (non Hurrtrak) Google Earth Data - This option allows the user to export National Weather Service and other weather data onto Google Earth. When hurricane information is also exported from the Hurrtrak system, it allows the user to integrate the 2 sources of data on the same Google Earth interface.

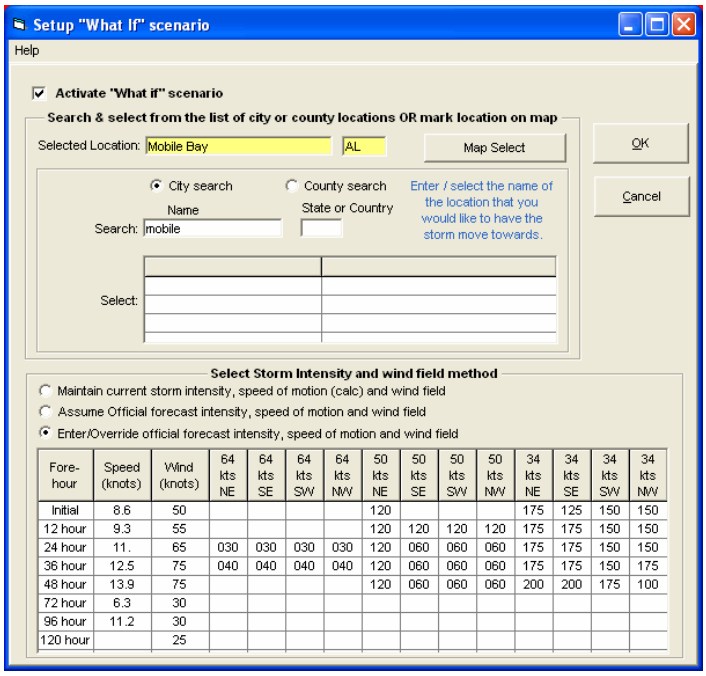
See page 306 and page 334 for more information on this topic.

TOOLS

The tools function allows the user to…

- **override the official forecast with Setup "What if" analysis**
- **conduct post storm analysis**
- **setup Automated Summary reports**
- **setup Email Alerts**
- **setup Additional Automations**
- **define user preferences**
- **setup Application Appearance (skins, toolbar options).**

Setup "What if" scenario


Setup "What If" scenario
Help
Activate "What if" scenario
Search & select from the list of city or county locations OR mark location on map
Selected Location: Mobile Bay
AL
Map Select
OK
Cancel
City search
County search
Name
State or Country
Search: mobile
Enter / select the name of the location that you would like to have the storm move towards.
Select:
Select Storm Intensity and wind field method
Maintain current storm intensity, speed of motion (calc) and wind field
Assume Official forecast intensity, speed of motion and wind field
Enter/Override official forecast intensity, speed of motion and wind field

Fore-hour	Speed (knots)	Wind (knots)	64 kts NE	64 kts SE	64 kts SW	64 kts NW	50 kts NE	50 kts SE	50 kts SW	50 kts NW	34 kts NE	34 kts SE	34 kts SW	34 kts NW
Initial	8.6	50					120				175	125	150	150
12 hour	9.3	55					120	120	120	120	175	175	150	150
24 hour	11.	65	030	030	030	030	120	060	060	060	175	175	150	150
36 hour	12.5	75	040	040	040	040	120	060	060	060	175	175	150	175
48 hour	13.9	75					120	060	060	060	200	200	175	100
72 hour	6.3	30												
96 hour	11.2	30												
120 hour		25												

"What if" Options:

Activate "what if" - This option, when selected, will change the official forecast path of the current storm to a motion directly towards the location selected below.

Selected Location - This identifies the selected location that the official forecast will now be adjusted towards.

Selection Criteria - The user can select the "what if" location by keying in all or part of a county or city name. The location is selected by double clicking on its row.

Map Select - By selecting this option, the user is presented with a large map covering the entire tropical storm basin. By left clicking on a map location, and selecting Accept, this location (Latitude and Longitude) will be the selected target point.

Storm intensity and wind field method - There are 3 intensity options when selecting the Direct To Point tool.

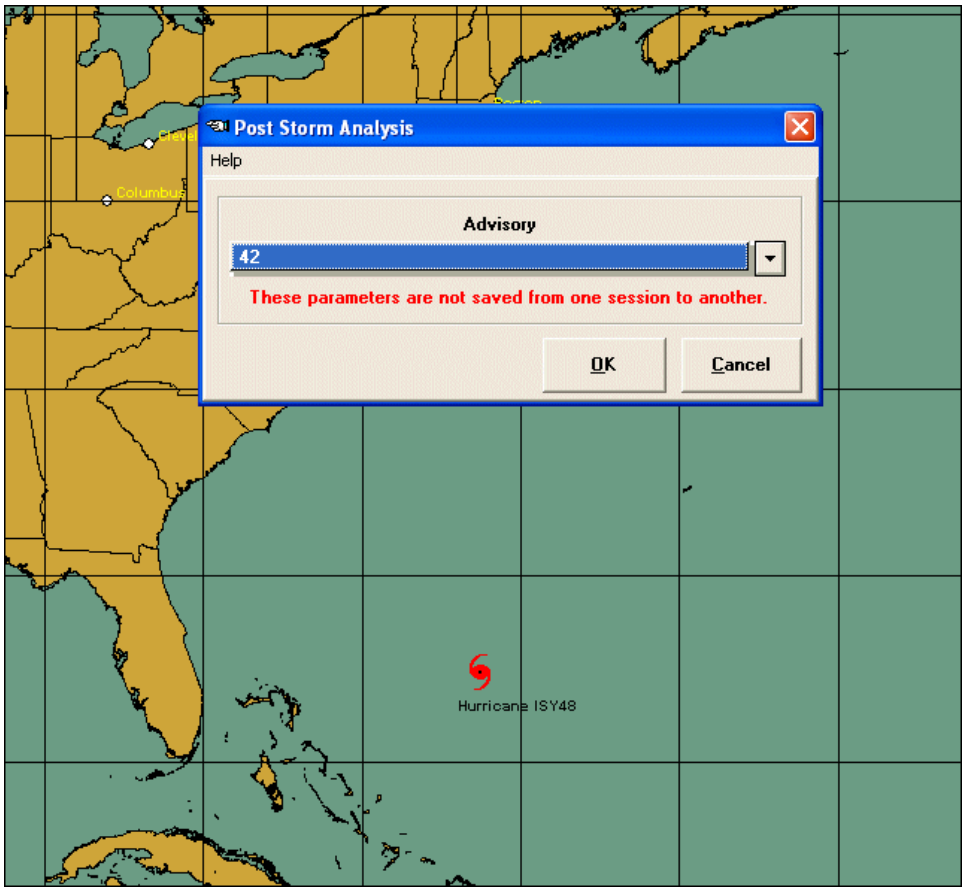
- To maintain the storm's current intensity through 120 hours regardless of the official forecast intensity and wind field projections, as well as ignoring landfall effects, etc.
- To utilize the official forecast intensity and wind field projections throughout the 120 hour forecast period. This method should only be used when the "what if" deviation from official forecast is relatively small and landfall times, etc. are similar to the official forecast track.
- To override the official forecast motion, intensity and wind field projections. When this option is selected, the user can then override the forecast parameters.

Intensity and wind field information - This is the area where the user can override the official forecast information. The user can adjust the storm's forward speed, wind intensity, and areas of 64, 50 and 34 knot winds.

NOTE: All reports and most functions will now use the new forecast path. A new option to plot the "what if" forecast is added to the PLOT menu function. Some data which is not directly related to the forecast path is not changed…i.e. Wind and Surge Probabilities, Forecast Rainfall, etc..

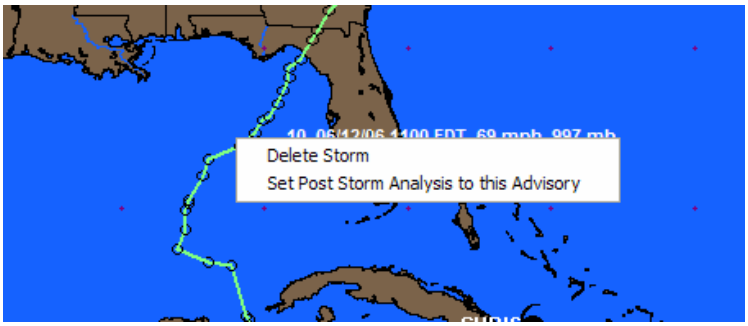
Setup Post Storm Analysis

This option is very useful in learning the system, doing post storm analysis or during storm exercises



This option resets what the system "thinks" is the latest advisory. The user must select the advisory number to use as the latest one. The only functions that are not affected by this are data maintenance and strike probability calculations.

An easier method to select a past advisory for post storm analysis is to move your mouse over a past observation point while viewing the database tab map image and right click, selecting "set Post Storm Analysis to this advisory".



Summary Report Setup (Automated)

The setup of automated summary reports can be selected via the Tools menu option or via the Command Bar Icons.

A dialog screen is displayed showing all of the current summary reports. The system comes predefined with one of each type of summary report. Feel free to use the copy command to copy these predefined reports to create your personalized one.

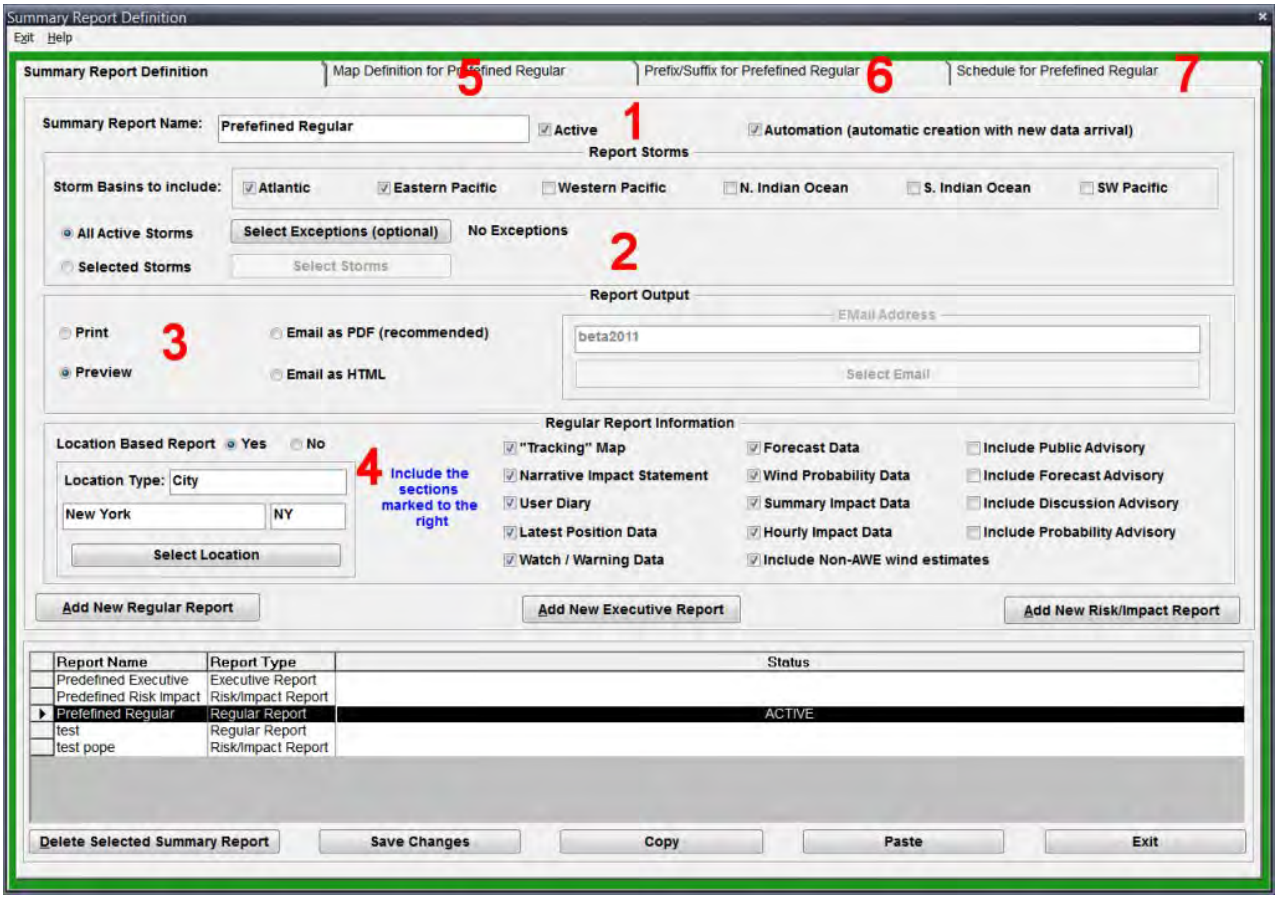
Important: There are 2 pre-requirements to successfully Email these reports.

1. You need to have setup your Email via the User Preferences Option (EMAIL Setup).
2. You must define the email addresses or groups you would like have the ability to send these reports to… via the User Preferences (Email Addressbook). This is required even if you have selected the Outlook method for emailing in the Email setup.

There are 3 types of automatic summary reports… Regular (Location based), Executive (Location Group based) and Risk Impact (Location Group).

The following section will discuss the setup of each type of report as well as discussing the "error catching" feature of the setup option. Please note that the definition of Email Alerts and "Other" Automations have a similar look and feel.

The Automated Summary Report Setup screen looks similar to the following.



Sections 1, 2, 3, Tabs 6 and 7 are essentially the same for all 3 types of Summary Reports. Section 4 and Tab 5 may vary by type of report.

Let's look at the sections that <u>do not</u> vary by type of report.

Section 1 indicates the **Name** of the report as well as indicators that control whether this report is **active** and also whether it should be **automatically generated**. It is valid to have a report that is active with the automatic option turned off. This is typically used when you only want to generate the report manually… i.e. selected from the Hurrtrak menu.

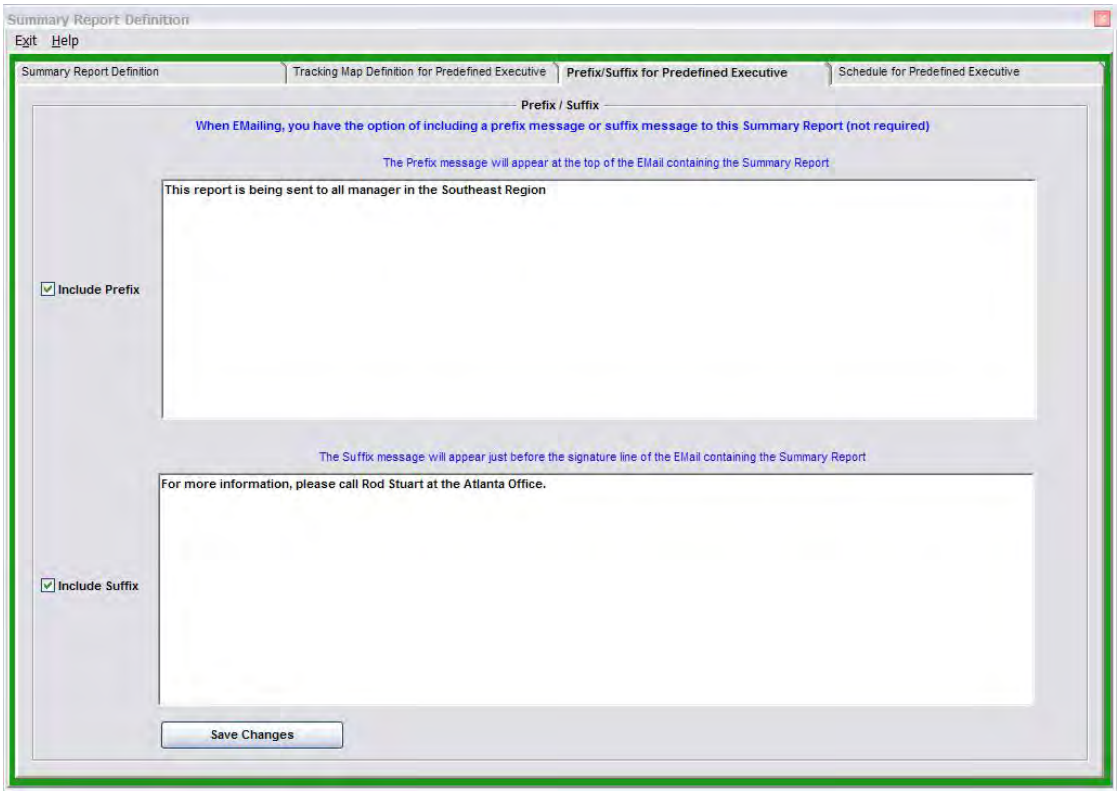
Section 2 defines the storms you would like considered when running the report. The "**all active storms"** selection will select only storms that are currently having advisories issued for them. When you manually run the report, it will only include storms that have data no more than 18 hours old (the "age" setting can be changed in the user options). With this option you can specify storms to "ignore" via the **Select Exceptions** command.

The **"Selected Storms"** option will run the report for only storms you manually select. You can select those storms via the **Select Storms** command.

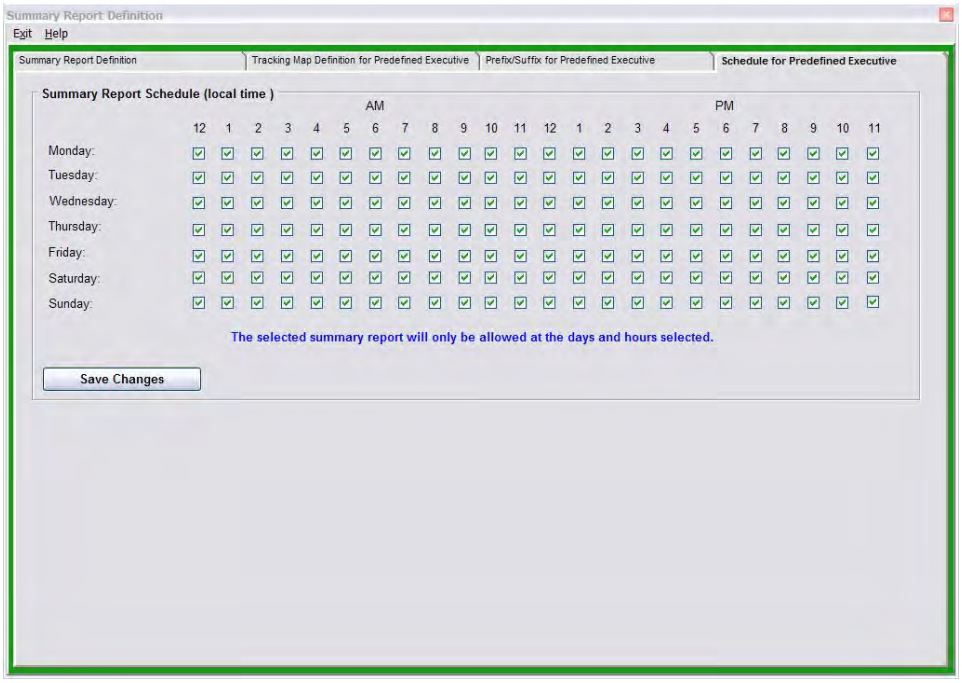
Finally, Global/Advanced users can select or de-select the **storm basins** they want to include for storm selection. i.e. if you are only interested in the Atlantic and Western Pacific then check only those 2 items.

Section 3 defines how you want to handle the report output and in some cases, its format. The valid options are to **Print** to the default printer, **Preview** it on your screen, **Email it as a PDF** file or **Email as HTML**. A couple of notes here… First, when testing your reports, we suggest you use the Preview option. Also.. we suggest you Email the summary reports in PDF format, as they are much more attractive in that format. If you select the Email option, you need to select an email address or group.

Section/Tab 6 defines additional text you would like included within the email body. This is optional. See example below.


Summary Report Definition
Exit Help
Summary Report Definition
Tracking Map Definition for Predefined Executive
Prefix/Suffix for Predefined Executive
Schedule for Predefined Executive
Prefix / Suffix
When EMailing, you have the option of including a prefix message or suffix message to this Summary Report (not required)
The Prefix message will appear at the top of the EMail containing the Summary Report
This report is being sent to all manager in the Southeast Region
Include Prefix
The Suffix message will appear just before the signature line of the EMail containing the Summary Report
For more information, please call Rod Stuart at the Atlanta Office.
Include Suffix
Save Changes

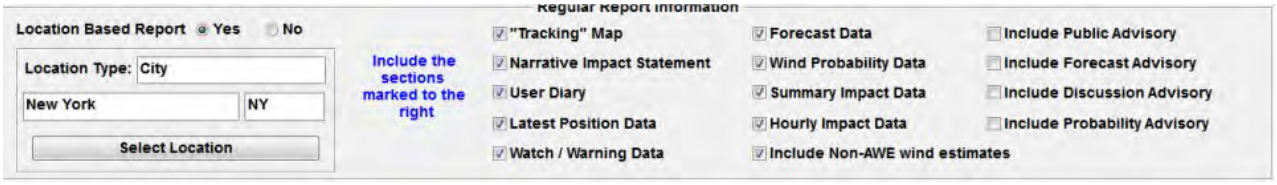
Section/Tab 7 allows the user to adjust the schedule of when this report can automatically be run. In this way you can have the report only created on certain days and times. See example below.


Summary Report Definition
Exit Help
Summary Report Definition
Tracking Map Definition for Predefined Executive
Prefix/Suffix for Predefined Executive
Schedule for Predefined Executive
Summary Report Schedule (local time)
AM
PM
12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11
Monday:
Tuesday:
Wednesday:
Thursday:
Friday:
Saturday:
Sunday:
The selected summary report will only be allowed at the days and hours selected.
Save Changes

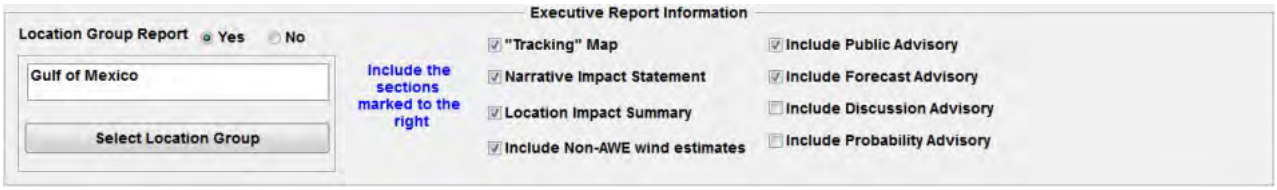
Now let's look at the sections and tabs that <u>DO</u> vary by Automated Summary Report TYPE.

Section 4 is information that is specific to the report type being defined.

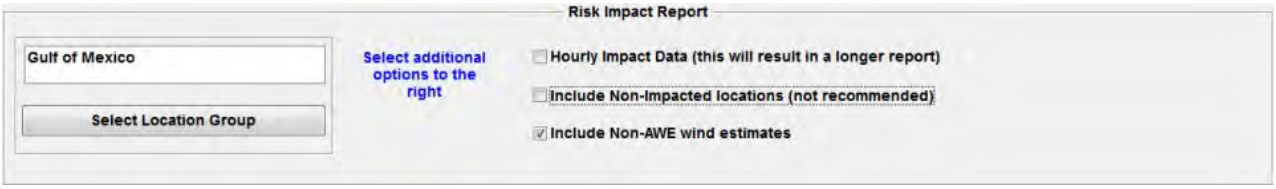
For the **Regular (location based)** report type, it looks like the image below. As you can see, you can define the location (or location group) you want to create the report for as well as additional details of what sections you would like included. FYI… you do not have to define a location for this report to run.. It will just contain general information about the storm not specific to a location.



For the **Executive (location group based)** report type, section 4 looks like the image below. It is similar to the Regular report but expects the user to define the location group they would like to create a report for. Also… just like the regular report, you do not have to define a location group for this report to run. It will only contain general information.

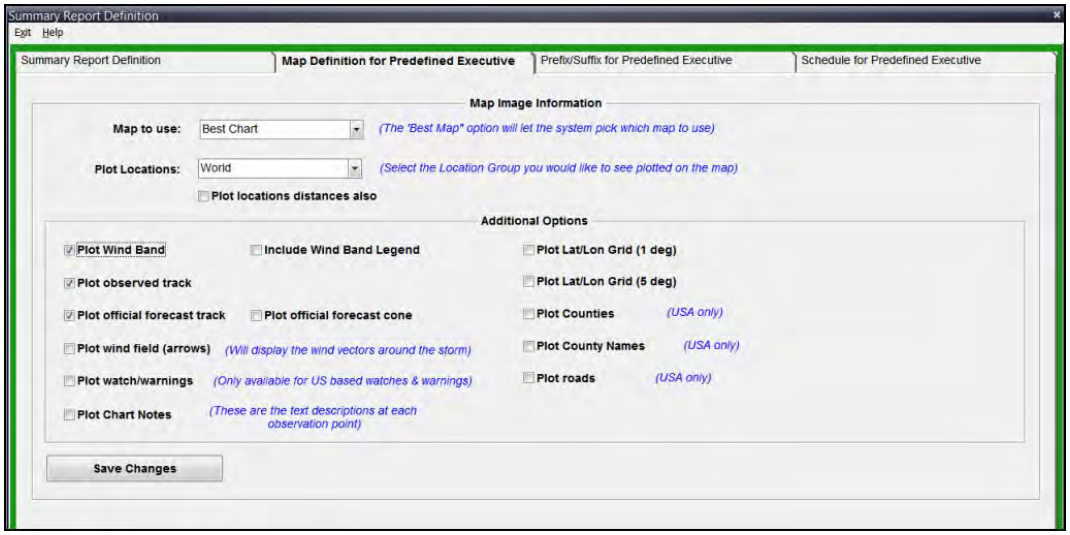


Finally, for the **Risk Impact** report type, section 4 just contains the location group and 3 additional options. Note.. A Location Group is required.


Risk Impact Report
Gulf of Mexico
Select Location Group
Select additional options to the right
Hourly Impact Data (this will result in a longer report)
Include Non-Impacted locations (not recommended)
Include Non-AWE wind estimates

Now on to the last section which varies by Report Type... **Section/Tab 5.**

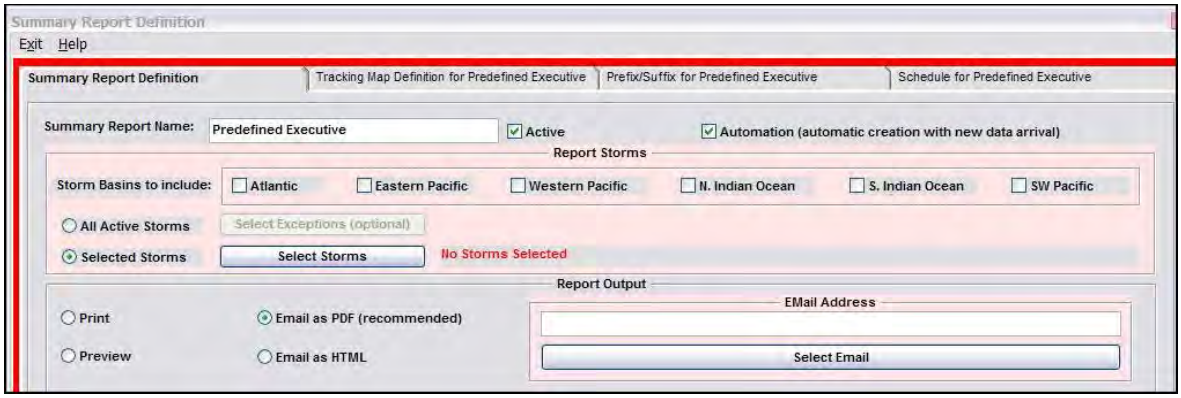
For the **Regular** and **Executive** report types, this tab allows the user to define the elements they want included on the tracking map. This includes which tracking map to use (we suggest BEST CHART), the locations (location group) to plot on the map, as well as several other obvious options below. The **Risk Impact** report does not include a tracking map. Please note... if you select to plot the wind band, the generation of the report will take longer. In addition the wind band legend will appear in the lower left portion of the tracking map.


Summary Report Definition
Exit Help
Summary Report Definition
Map Definition for Predefined Executive
Prefix/Suffix for Predefined Executive
Schedule for Predefined Executive
Map Image Information
Map to use: Best Chart
(The "Best Map" option will let the system pick which map to use)
Plot Locations: World
(Select the Location Group you would like to see plotted on the map)
Plot locations distances also
Additional Options
Plot Wind Band
Include Wind Band Legend
Plot Lat/Lon Grid (1 deg)
Plot observed track
Plot Lat/Lon Grid (5 deg)
Plot official forecast track
Plot official forecast cone
Plot Counties
(USA only)
Plot wind field (arrows)
(Will display the wind vectors around the storm)
Plot County Names
(USA only)
Plot watch/warnings
(Only available for US based watches & warnings)
Plot roads
(USA only)
Plot Chart Notes
(These are the text descriptions at each observation point)
Save Changes

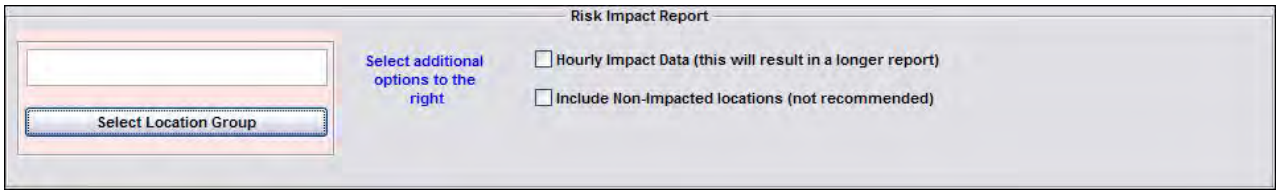
One last topic in this section…. Error Assistance…

The Summary Report Setup dialog is designed to help you along the way. It does this by highlighting areas that need correcting as well as changing the color of the border. So far all of the examples above show a nice green border… which means "all is well". Let's look at conditions which will cause errors and how they are demonstrated.

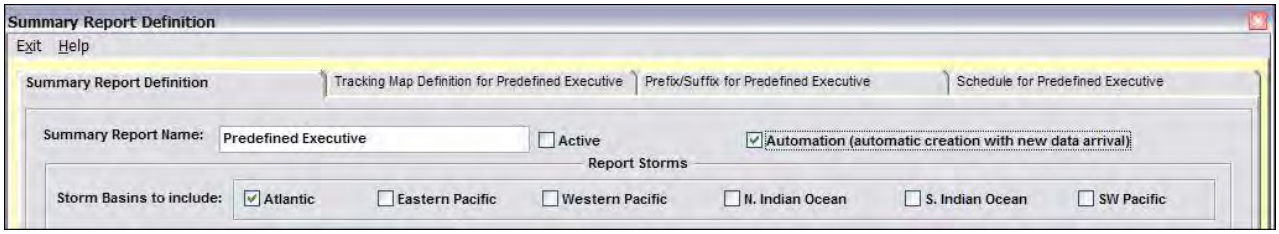
The image below actually shows 3 errors… First no storm basin is selected, next… there are no storms selected (the Selected Storms option is on) and finally no Email address is defined when the output type specifies EMAIL. Correcting each of these will turn the border green.



For the **Risk Impact report** you can also have an error condition when no Location Group is selected.


Risk Impact Report
Select Location Group
Select additional options to the right
Hourly Impact Data (this will result in a longer report)
Include Non-Impacted locations (not recommended)

Finally, there is also a "WARNING" type error conditions. A yellow border will appear if the report is defined correctly but either the ACTIVE or AUTOMATION boxes are not checked. This is acceptable under certain conditions of when you only want to run the report manually.



Remember, an ALL GREEN border means you have defined a "proper" Summary Report. Of course, this report will only be generated when the Active or Selected Storm option is satisfied.

Examples of Standard, Executive and Risk Impact Summary Reports are shown on page 284.

Email Alert Setup (Automated)

The setup of automated Email Alerts can be selected via the Tools menu option or via the Command Bar Icons.

A dialog screen is displayed showing all of the current Email Alerts. The system comes predefined with one of each type.

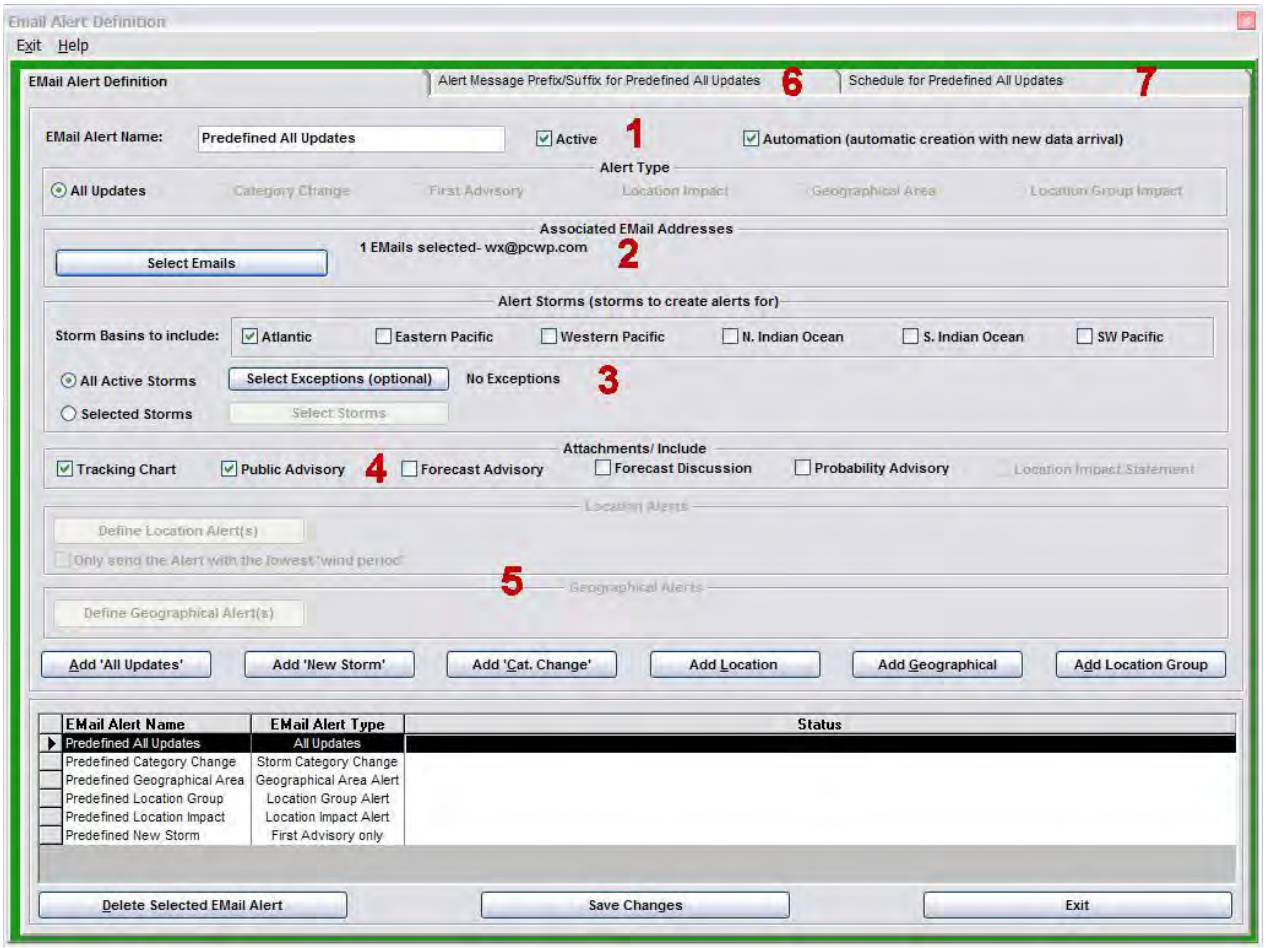
Important: There are 2 pre-requirements to successfully Email these Alerts.

1. You need to have setup your Email via the User Preferences Option (EMAIL Setup).
2. You must define the email addresses or groups you would like to send these reports to… via the User Preferences (Email Addressbook). This is required even if you have selected the Outlook method for emailing in the Email setup.

There are 6 types of automatic Email Alerts… All updates, New Storm, Category Change, Location, Location Group, Geographical Area.

The following section will discuss the setup of each type of alert as well as discussing the "error catching" feature of the setup option. Please note that the definition of Automatic Summary Reports and "Other" Automations have a similar look and feel.

The Automated Email Alert Setup screen looks similar to the following.



Section 1, 2, 3, 4, Tabs 6 and 7 are essentially the same for all 6 types of Email Alerts. Section 5 is the only section that varies by type of Alert.

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Let's look at the sections that, for the most part, do not vary by type of Alert.

Section 1 indicates the **Name** of the Alert as well as indicators that control whether this alert is **active** and also whether it should be **automatically generated**. It is valid to have an alert that is active with the automatic option turned off. This is typically used when you only want to generate the Alert manually… i.e. selected from the Hurrtrak menu. Please note, you cannot manually generate the New Storm or Change Category Alert. It can only be generated from the automated processes (i.e. when new storm data is received).

Section 2 defines the email address(s) or email groups that you would like to send this type of Alert to. Remember you need to define these emails or group to the Hurrtrak system via the User Preferences / Email addressbook option. Obviously at least one email address must be selected for this alert to be defined correctly.

Section 3 defines the storms you would like considered when running the alert. The "**all active storms"** selection will select only storms that are currently having advisories issued for them. When you manually run the alert, it will only include storms that have data no more than 18 hours old (the "age" setting can be changed in the user options). With this option you can specify storms to "ignore" via the **Select Exceptions** command.

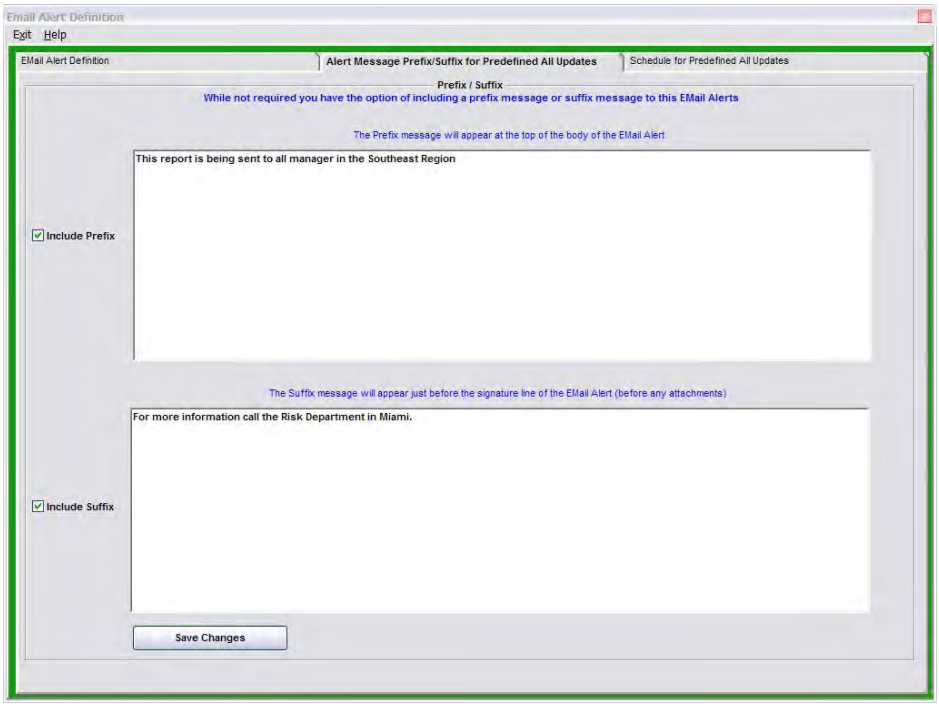
The **"Selected Storms"** option will run the alert for only storms you manually select. You can select those storms via the **Select Storms** command.

Finally, Global/Advanced users can select or de-select the **storm basins** they want to include for storm selection. i.e. if you are only interested in the Atlantic and Western Pacific then check only those 2 items.

Note: The New Storm Alert does not consider the Storm Selection criteria. i.e. There is no point of having to define the new storms before they occur. It does consider the basins selected as it will only report on new storms in the basins you have selected.

Section 4 defines which additional information and attachments you would like to include with this alert. Note, the Location Impact Statement is only available for Location Group Alerts.

Section/Tab 6 defines additional text you would like included within the email body of the Alert. This is optional. See example below.


Email Alert Definition
Exit Help
EMail Alert Definition
Alert Message Prefix/Suffix for Predefined All Updates
Schedule for Predefined All Updates
Prefix / Suffix
While not required you have the option of including a prefix message or suffix message to this EMail Alerts
The Prefix message will appear at the top of the body of the EMail Alert
This report is being sent to all manager in the Southeast Region
Include Prefix
The Suffix message will appear just before the signature line of the EMail Alert (before any attachments)
For more information call the Risk Department in Miami.
Include Suffix
Save Changes

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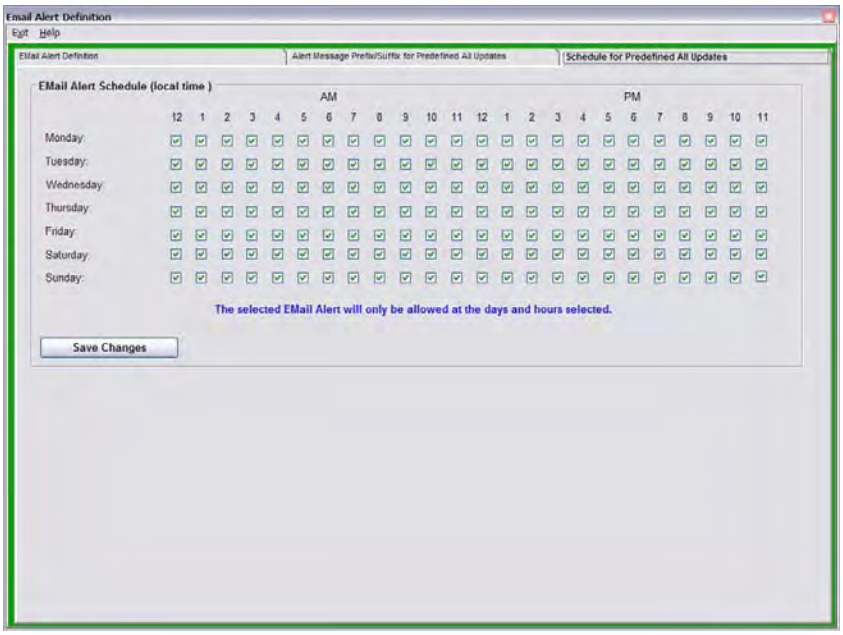
Section/Tab 7 allows the user to adjust the schedule of when this alert can automatically be run. In this way you can create Email alerts only on certain days and times. See example below.

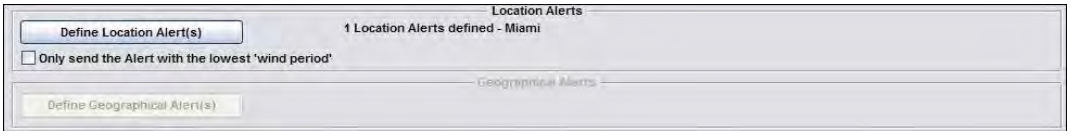

Email Alert Definition
Exit Help
EMail Alert Definition
Alert Message Prefix/Suffix for Predefined All Updates
Schedule for Predefined All Updates
EMail Alert Schedule (local time)
AM
PM
12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11
Monday:
Tuesday:
Wednesday:
Thursday:
Friday:
Saturday:
Sunday:
The selected EMail Alert will only be allowed at the days and hours selected.
Save Changes

Now let's look at the one section <u>DOES</u> vary by Automated Email Alert TYPE.

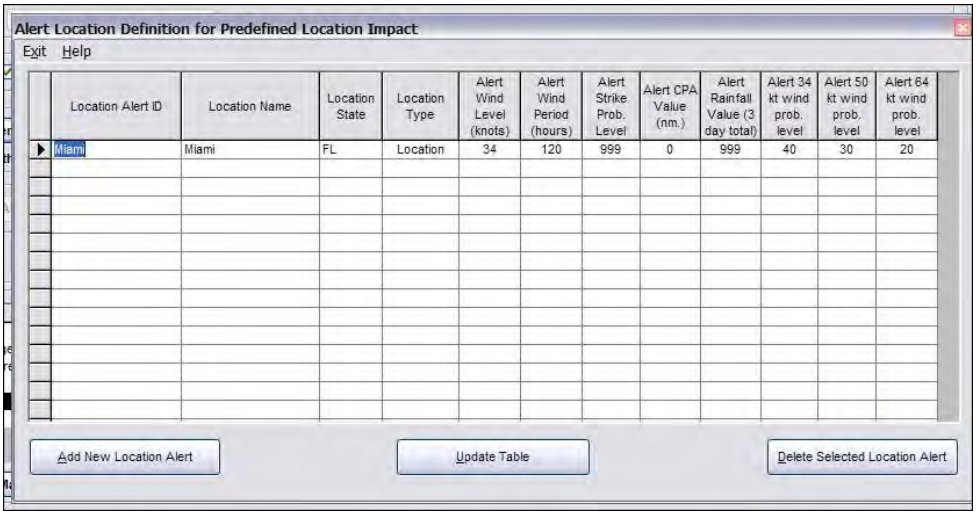
Section 5 is information that is specific to the Alert type being defined.

For the **ALL Update, Category Change and New Storm Alerts**, this section is disabled… i.e. no additional information is needed.

For the **Location Alert**, this section appears like the image below.


Location Alerts
Define Location Alert(s)
1 Location Alerts defined - Miami
Only send the Alert with the lowest 'wind period'
Geographical Alerts
Define Geographical Alert(s)

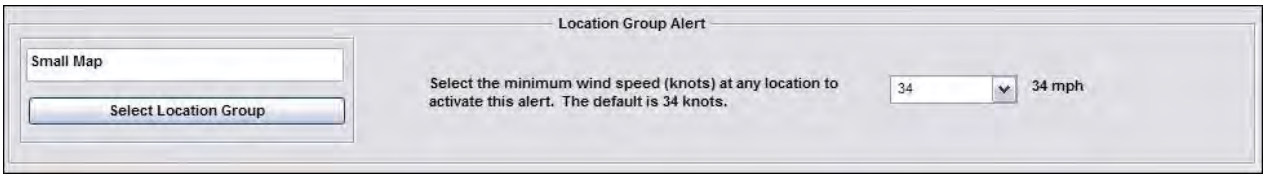
You can define several locations for each Location Alert. The dialog box for doing so is shown below…


Alert Location Definition for Predefined Location Impact
Exit Help
Location Alert ID
Location Name
Location State
Location Type
Alert Wind Level (knots)
Alert Wind Period (hours)
Alert Strike Prob. Level
Alert CPA Value (nm.)
Alert Rainfall Value (3 day total)
Alert 34 kt wind prob. level
Alert 50 kt wind prob. level
Alert 64 kt wind prob. level
Miami Miami FL Location 34 120 999 0 999 40 30 20
Add New Location Alert
Update Table
Delete Selected Location Alert

To add locations, select the Add New Location and answer the questions on the setup “wizard”. If you select multiple locations for the Location Alert, an separate email will be sent for each one to each Email address you defined (assuming the trigger has been met for the location). i.e. if you have 5 locations defined but only 1 is expected to be impacted (triggered), then only 1 Email will be sent. There is one special case related to this we will discuss at the end of this section. Note: There is absolutely no problem with defining only one location per Location Alert.. It may, in fact, simplify things a bit.

As mentioned earlier, the criteria available for location alerts are Wind speed, Timing of wind, Rainfall, Wind probability and “closest point of approach” (of the center of the storm).

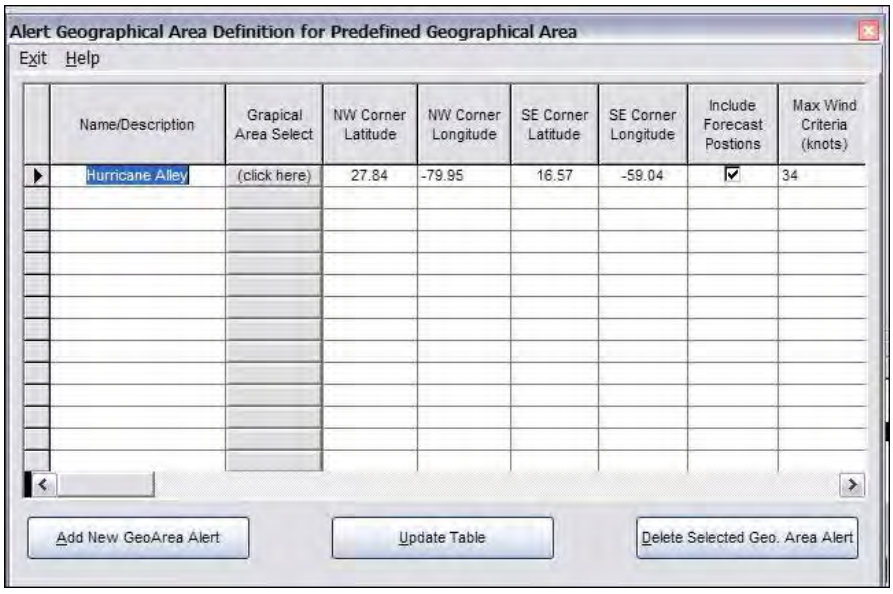
For the **Location Group Alert**, this section appears like the image below. It only needs the Location Group you are defining this alert for and the minimum wind speed (at any of the locations) that will trigger this alert. i.e. if you are only interested when any of “your” locations will be impacted by 50 knot winds, then change the default wind speed to 50 knots. This is for sustained winds only, not gusts.


Location Group Alert
Small Map
Select Location Group
Select the minimum wind speed (knots) at any location to activate this alert. The default is 34 knots.
34
34 mph

Finally, for the **Geographical Alert** type, section 5 allows the user to define the geographical area they are interested in receiving alerts for.

Location Alerts
Define Location Alert(s)
Only send the Alert with the lowest 'wind period'
Geographical Alerts
Define Geographical Alert(s)
1 Geographical Alerts defined - Hurricane Alley

You can define several areas for each Geographical Alert. The dialog box for doing so is shown below…



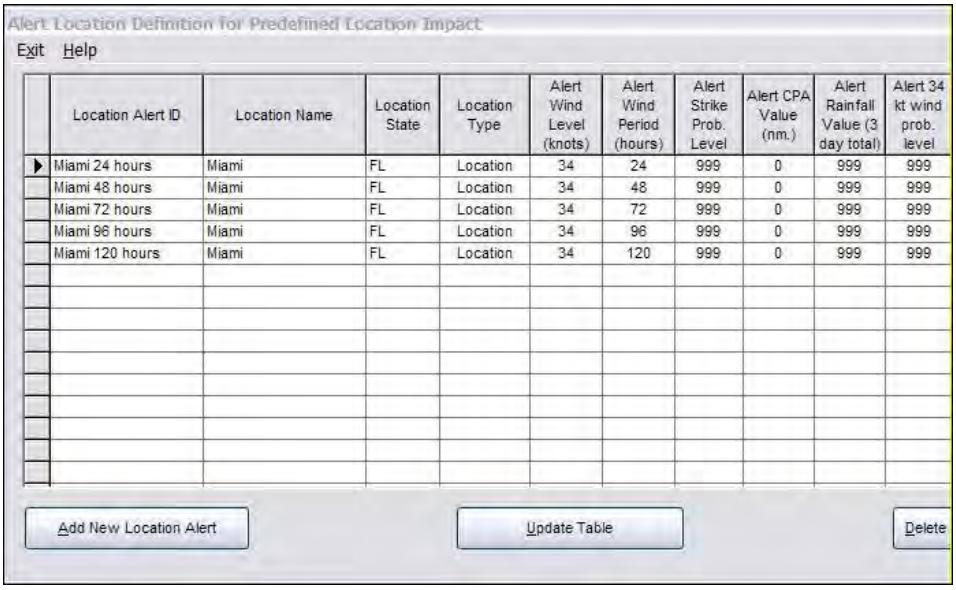
To add additional areas, select the Add New Geo/Area and answer the questions on the setup “wizard”. If you select multiple areas for the Geographical Alert, an separate email will be sent for each one to each Email address you defined (assuming the trigger has been met for the area). i.e. if you have 5 areas

defined but only 1 is expected to have an active storm in it, then only 1 Email will be sent. Note: There is absolutely no problem with defining only one area per Geographical Alert.. It may, in fact, simplify things a bit.

SPECIAL LOCATION ALERT TYPE:
For "more expert" users, we have come up with the ability to send Email alerts based on the timing of a trigger wind speed… in an escalating manner.

Let look at an example and then explain how it will behave.

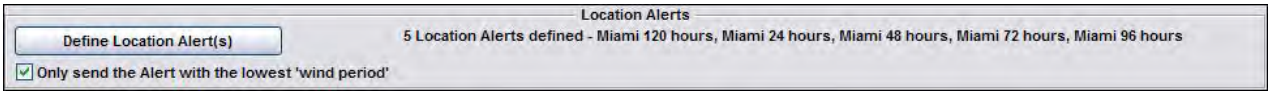
The image below shows a location alert, with 5 entries for Miami. Each one has the same wind speed criteria (34 knots) but the timing for these winds vary for each entry.



Location Alert ID	Location Name	Location State	Location Type	Alert Wind Level (knots)	Alert Wind Period (hours)	Alert Strike Prob. Level	Alert CPA Value (nm.)	Alert Rainfall Value (3 day total)	Alert 34 kt wind prob. level
Miami 24 hours	Miami	FL	Location	34	24	999	0	999	999
Miami 48 hours	Miami	FL	Location	34	48	999	0	999	999
Miami 72 hours	Miami	FL	Location	34	72	999	0	999	999
Miami 96 hours	Miami	FL	Location	34	96	999	0	999	999
Miami 120 hours	Miami	FL	Location	34	120	999	0	999	999

As a storm is forecasted to impact Miami, initially the longest period alert will be sent (120 hours). As the storm approaches, the lower period alerts will be sent instead… i.e. in this example, 96, 72, 48 and 24 hours.

One last thing has to be set for this to work properly. One the main Email Alert setup screen, you must select the option "Only send the Alert with the lowest 'wind period".

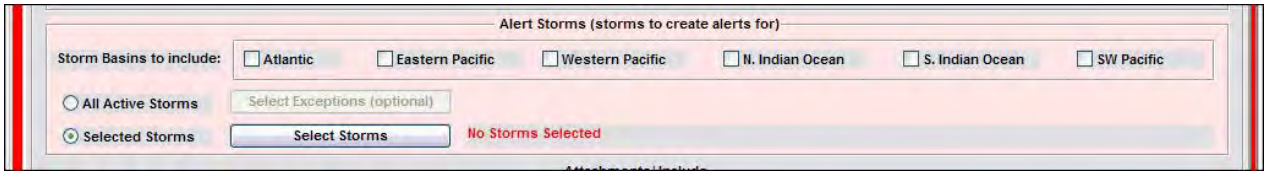

Location Alerts
Define Location Alert(s)
5 Location Alerts defined - Miami 120 hours, Miami 24 hours, Miami 48 hours, Miami 72 hours, Miami 96 hours
Only send the Alert with the lowest 'wind period'

This is a special situation that most users will not necessarily require.

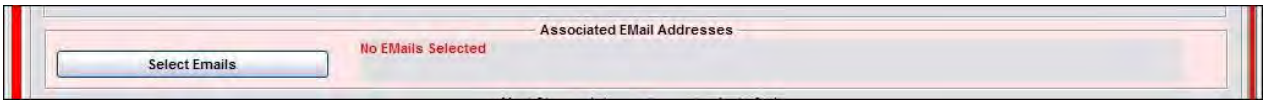
One last topic in this section…. Error Assistance…

The Email Alert Setup dialog is designed to help you along the way. It does this by highlighting areas that need correcting as well as changing the color of the border. So far all of the examples above show a nice green border… which means "all is well". Let's look at conditions which will cause errors and how they are demonstrated.

The image below actually shows 2 errors… First no storm basin is selected, next… there are no storms selected (the Selected Storms option is on). Correcting each of these will turn the border green (assuming you have no other errors).

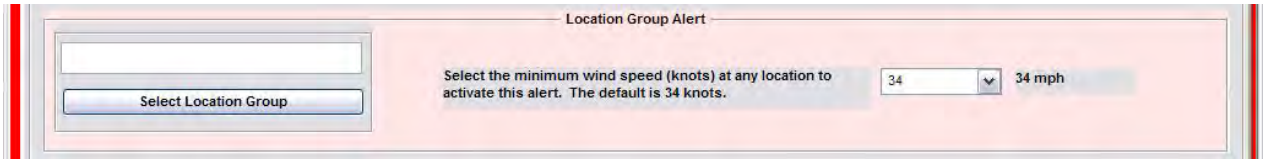


The image below shows the important error of not having selected at least 1 **email address** to send to.

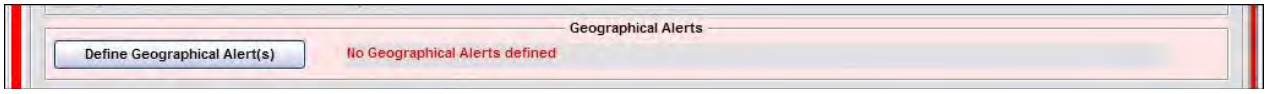


For the **Location alert** you can also have an error condition if no locations have been defined.

For the **Location Group** alert, you must define the Location Group


Location Group Alert
Select Location Group
Select the minimum wind speed (knots) at any location to activate this alert. The default is 34 knots.
34
34 mph

For the **Geographical Area** Alert, you need to define at least 1 area.



And finally, similar to the Summary Report setup there is also a “WARNING” type error conditions. A yellow border will appear if the report is defined correctly but either the ACTIVE or AUTOMATION boxes are not checked. This is acceptable under certain conditions.

Remember, an ALL GREEN border means you have defined a “proper” Email Alert. Of course, this Alert will only be created when the storm and trigger settings are satisfied.

Examples of each type of Email Alert is shown on page 280.

“Other” Automations Setup

The setup of automated “Other” Automations can be selected via the Tools menu option or via the Command Bar Icons.

A dialog screen is displayed showing all of the current Automations. The system comes predefined with one of each type.

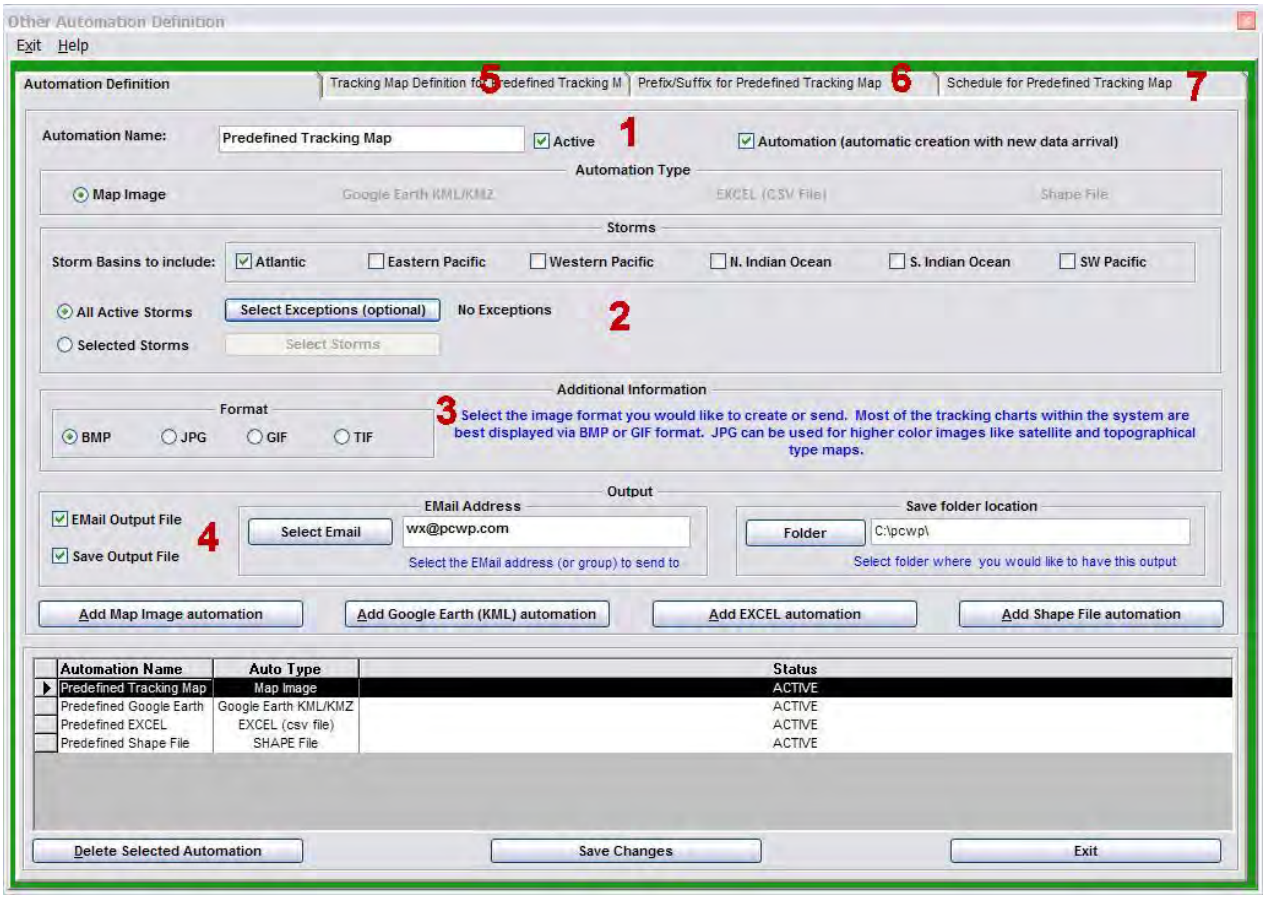
Important: There are 2 pre-requirements to successfully Email these outputs.

1. You need to have setup your Email via the User Preferences Option (EMAIL Setup).
2. You must define the email addresses or groups you would like to send these reports to… via the User Preferences (Email Addressbook). This is required even if you have selected the Outlook method for emailing in the Email setup.

The **Automations** capability basically includes other automatic output that did not fit into the category of Summary Report or EMAIL Alerts. The outputs defined in this function are automatically generated when new storm data is received and can be **saved to a hard drive location and/or sent via Email**. There are 4 types of “other” Automations.

The following section will discuss the setup of each type of output as well as discussing the “error catching” feature of the setup option. Please note that the definition of Automatic Summary Reports and Email Alerts have a similar look and feel.

The Automations Setup screen looks similar to the following.



Section 1, 2, 4, Tabs 6 and 7 are essentially the same for all 4 types of Automations. Section 3 and Tab 5 are the only sections that vary by type of Automation.

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Let's look at the sections that, for the most part, do not vary by type of Automation.

Section 1 indicates the **Name** of the Automation as well as indicators that control whether it is **active** and also whether it should be **automatically generated**. It is valid to have an automation that is active with the automatic option turned off. This is typically used when you only want to generate the automation manually… i.e. selected from the Hurrtrak menu.

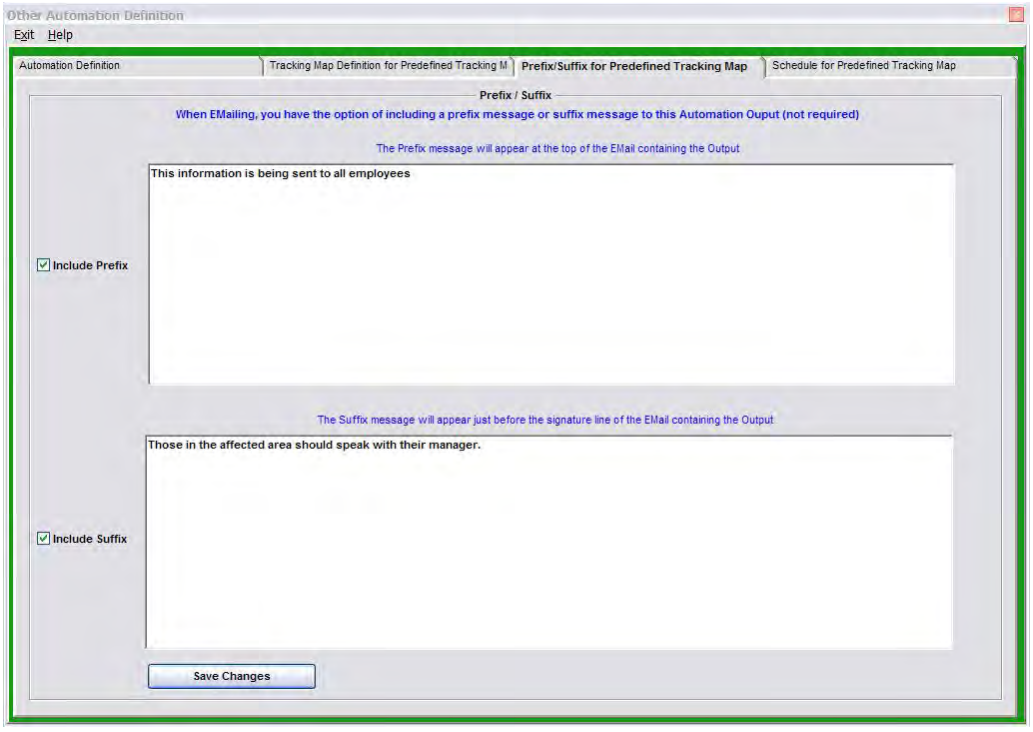
Section 2 defines the storms you would like considered when running the automations. The "**all active storms"** selection will select only storms that are currently having advisories issued for them. When you manually run the automations, it will only include storms that have data no more than 18 hours old (the "age" setting can be changed in the user options). With this option you can specify storms to "ignore" via the **Select Exceptions** command.

The **"Selected Storms"** option will run the automations for only storms you manually select. You can select those storms via the **Select Storms** command.

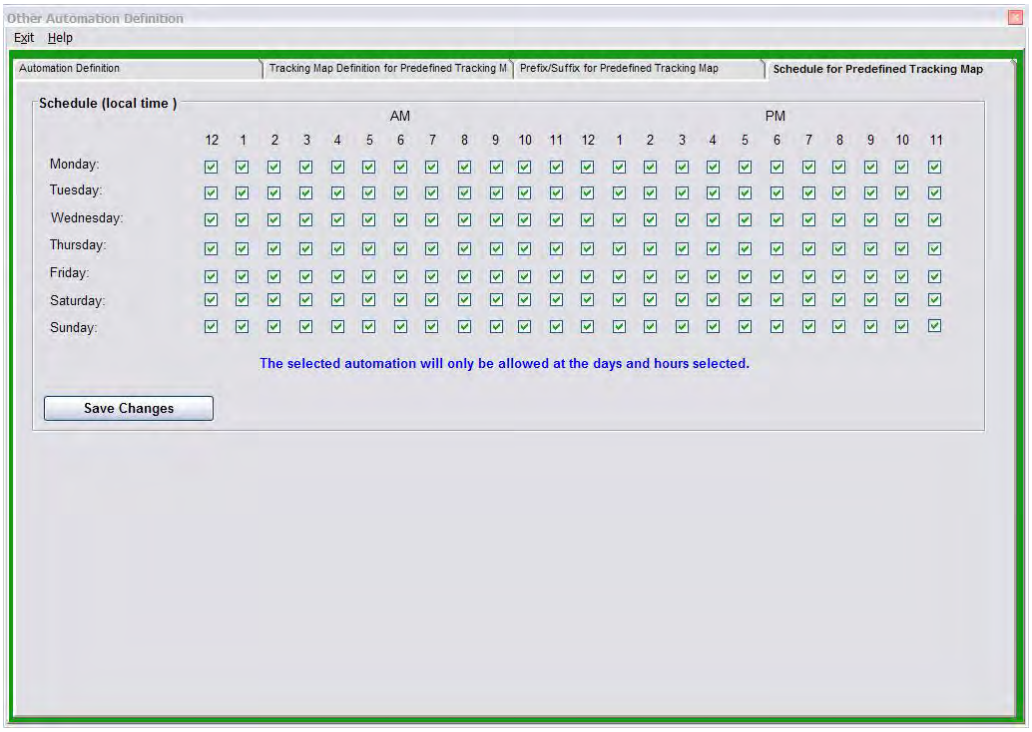
Finally, Global/Advanced users can select or de-select the **storm basins** they want to include for storm selection. i.e. if you are only interested in the Atlantic and Western Pacific then check only those 2 items.

Section 4 defines how to handle the automatic output. You can select to have the output saved to a hard drive location and/or email it.

Section/Tab 6 defines additional text you would like included within the email… when the output is being emailed. This is optional. See example below.


Other Automation Definition
Exit Help
Automation Definition
Tracking Map Definition for Predefined Tracking M
Prefix/Suffix for Predefined Tracking Map
Schedule for Predefined Tracking Map
Prefix / Suffix
When EMailing, you have the option of including a prefix message or suffix message to this Automation Ouput (not required)
The Prefix message will appear at the top of the EMail containing the Output
This information is being sent to all employees
Include Prefix
The Suffix message will appear just before the signature line of the EMail containing the Output
Those in the affected area should speak with their manager.
Include Suffix
Save Changes

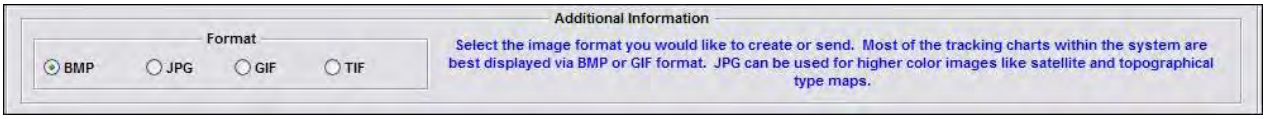
Section/Tab 7 allows the user to adjust the schedule of when this automation can run. In this way you can create this outputs only on certain days and times. See example below.


Other Automation Definition
Exit Help
Automation Definition
Tracking Map Definition for Predefined Tracking M
Prefix/Suffix for Predefined Tracking Map
Schedule for Predefined Tracking Map
Schedule (local time)
AM
PM
12 1 2 3 4 5 6 7 8 9 10 11 12 1 2 3 4 5 6 7 8 9 10 11
Monday:
Tuesday:
Wednesday:
Thursday:
Friday:
Saturday:
Sunday:
The selected automation will only be allowed at the days and hours selected.
Save Changes

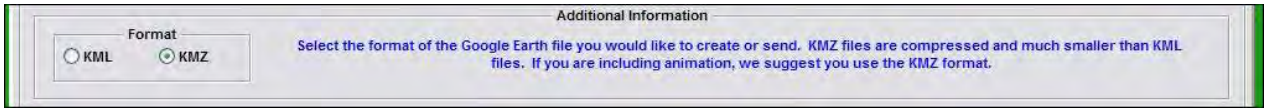
Now let's look at the two sections that <u>DO</u> vary by Automation TYPE.

Section 3 is information that is specific to the Automation type being defined.

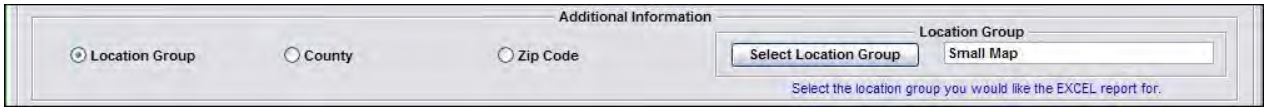
For the **Tracking Map** Automation, this section appears like the image below. The user can select the type of image format they prefer.


Additional Information
Format
BMP JPG GIF TIF
Select the image format you would like to create or send. Most of the tracking charts within the system are best displayed via BMP or GIF format. JPG can be used for higher color images like satellite and topographical type maps.

For the **Google Earth KML** Automation, this section appears like the image below. Here the user can specify KML or KMZ format for the Google Earth file. We recommend KMZ for its smaller size.


Additional Information
Format
KML KMZ
Select the format of the Google Earth file you would like to create or send. KMZ files are compressed and much smaller than KML files. If you are including animation, we suggest you use the KMZ format.

For the **EXCEL** Automation, this section appears like the image below. The user can specify a location group, all affected Counties or all affect Zip Codes.



The **Shape File** Automation does not require additional information in section 3.

Now on to the last section which varies by Automation Type... **Section/Tab 5.**

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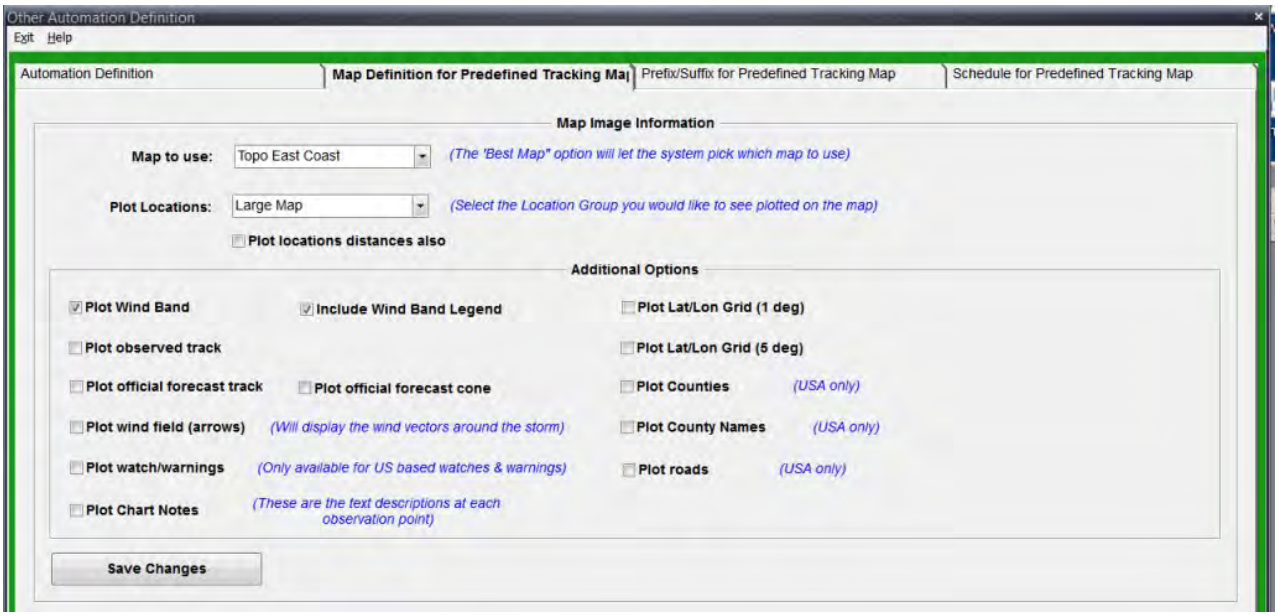
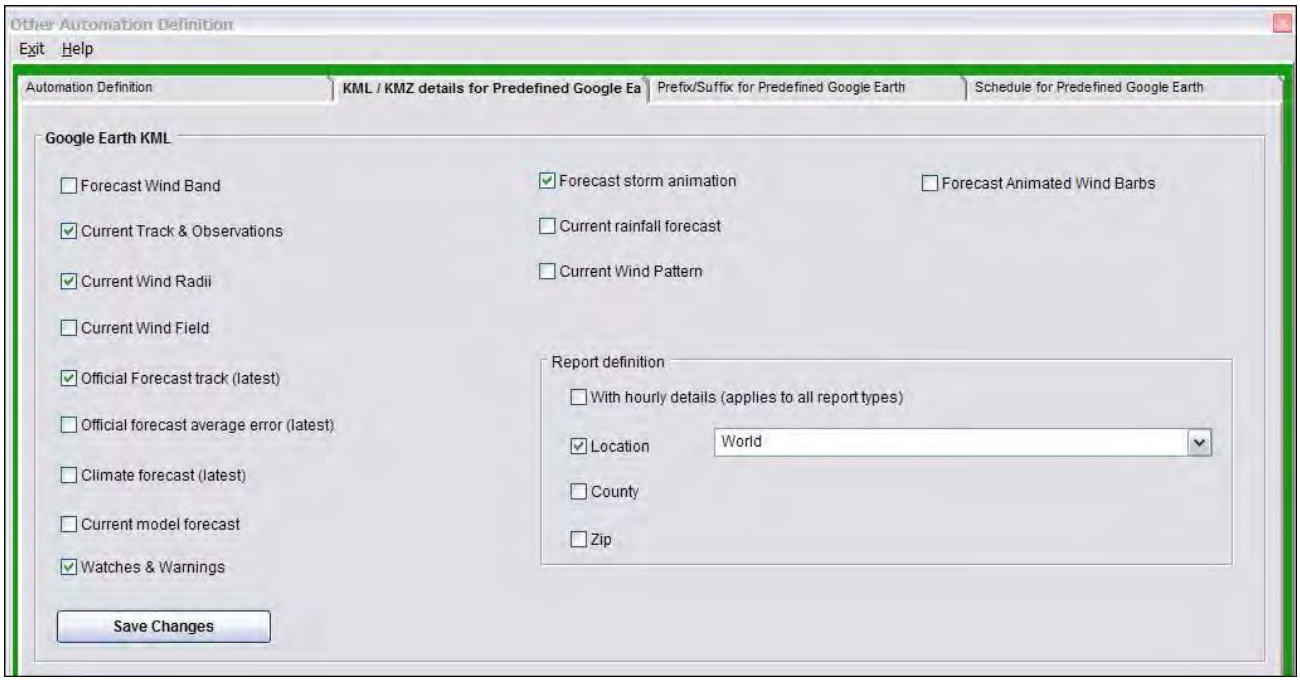
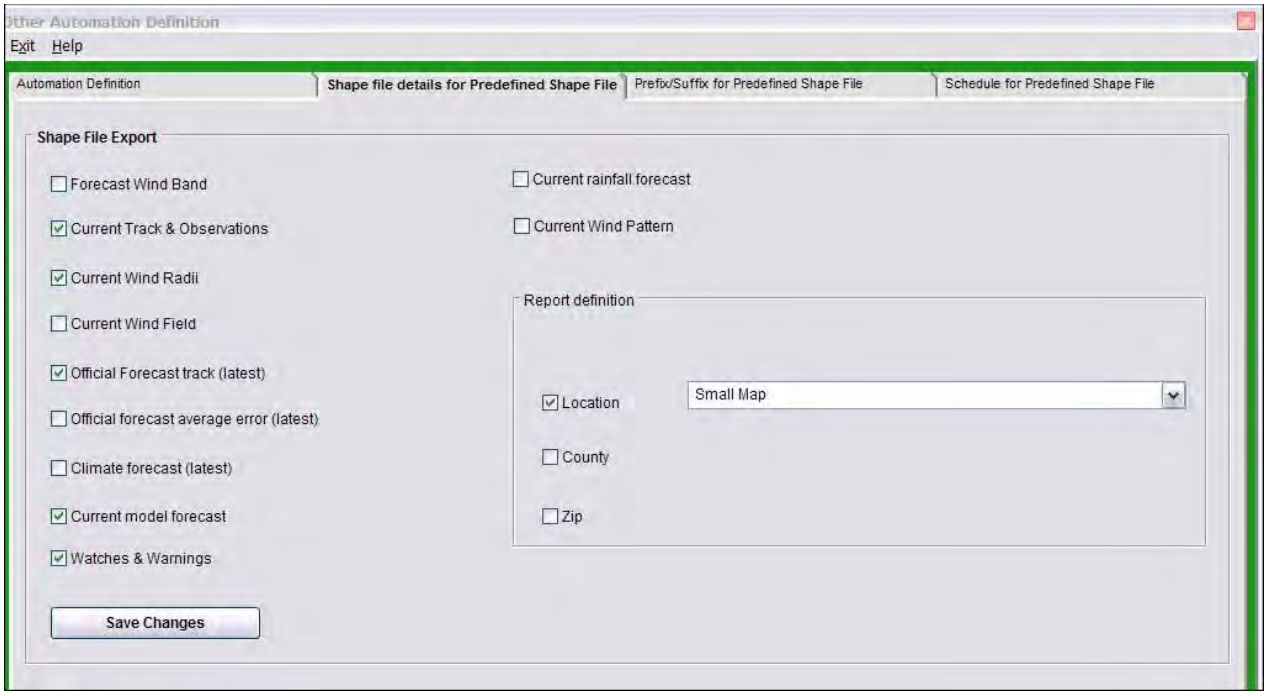
For the **Tracking Map Automation**, this tab allows the user to define the elements they want included on the tracking map. This includes which tracking map to use (we suggest BEST CHART), the locations (location group) to plot on the map, as well as several other options below.


Other Automation Definition
Exit Help
Automation Definition
Map Definition for Predefined Tracking Ma
Prefix/Suffix for Predefined Tracking Map
Schedule for Predefined Tracking Map
Map Image Information
Map to use:
Topo East Coast
(The 'Best Map" option will let the system pick which map to use)
Plot Locations:
Large Map
(Select the Location Group you would like to see plotted on the map)
Plot locations distances also
Additional Options
Plot Wind Band
Include Wind Band Legend
Plot Lat/Lon Grid (1 deg)
Plot observed track
Plot Lat/Lon Grid (5 deg)
Plot official forecast track
Plot official forecast cone
Plot Counties
(USA only)
Plot wind field (arrows)
(Will display the wind vectors around the storm)
Plot County Names
(USA only)
Plot watch/warnings
(Only available for US based watches & warnings)
Plot roads
(USA only)
Plot Chart Notes
(These are the text descriptions at each observation point)
Save Changes

For the **Google Earth Automation**, this tab allows the user to define the specific Google Earth outputs they would like to include within the KML/KMZ file.



For the **Shape File Automation**, this tab allows the user to define the specific Shape File outputs they would like to include.



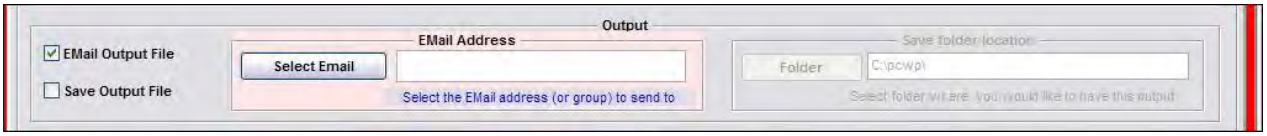
The **EXCEL** automation type does not require additional information on this tab.

One last topic in this section…. Error Assistance…

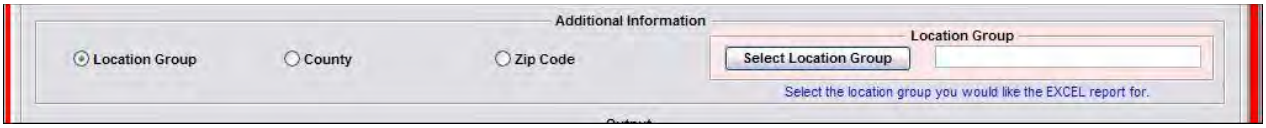
The Automations Setup dialog is designed to help you along the way. It does this by highlighting areas that need correcting as well as changing the color of the border. So far all of the examples above show a nice green border… which means "all is well". Let's look at conditions which will cause errors and how they are demonstrated.

The image below actually shows 2 errors… First no storm basin is selected, next… there are no storms selected (the Selected Storms option is on). Correcting each of these will turn the border green (assuming you have no other errors).

The image below shows the error condition of selecting to Email the Automation output but not yet specifying an email address.



For the **EXCEL** automation type, when specifying a location group, you must also define the specific Location Group you would like a report for.

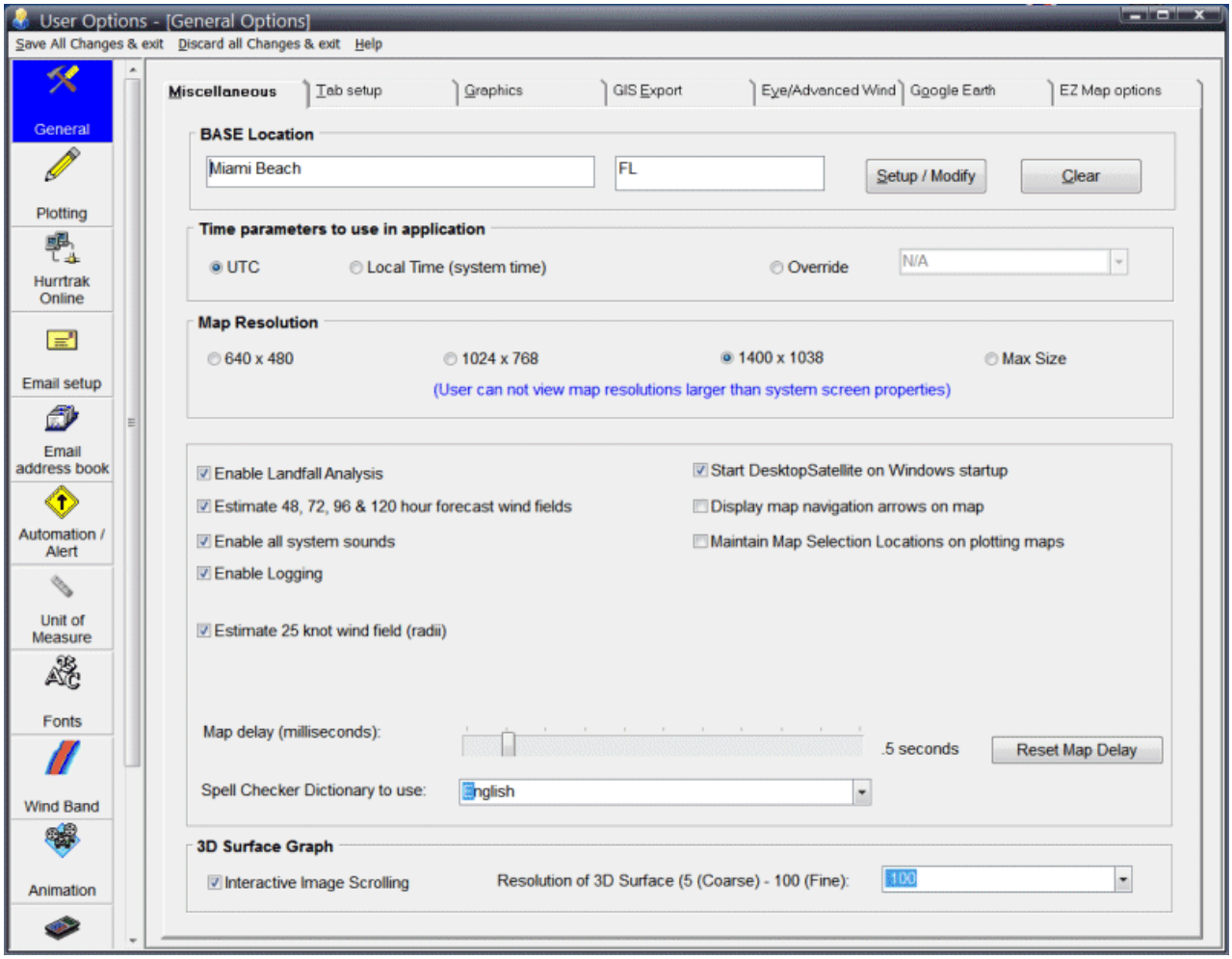


And finally, similar to the Summary Report setup there is also a “WARNING” type error conditions. A yellow border will appear if the Automation is defined correctly but either the ACTIVE or AUTOMATION boxes are not checked. This is acceptable under certain conditions.

Remember, an ALL GREEN border means you have defined a “proper” Automation. Of course, the output will only be generated when the Active or Selected Storm option is satisfied.

Tools - Options (User Preferences)

When user preferences are selected, the user is presented with windows containing ALL of the preferences shown. The user simply selects the category of preference and those fields are displayed below.



The categories of user preferences are explained below. They are presented in alphabetical order.

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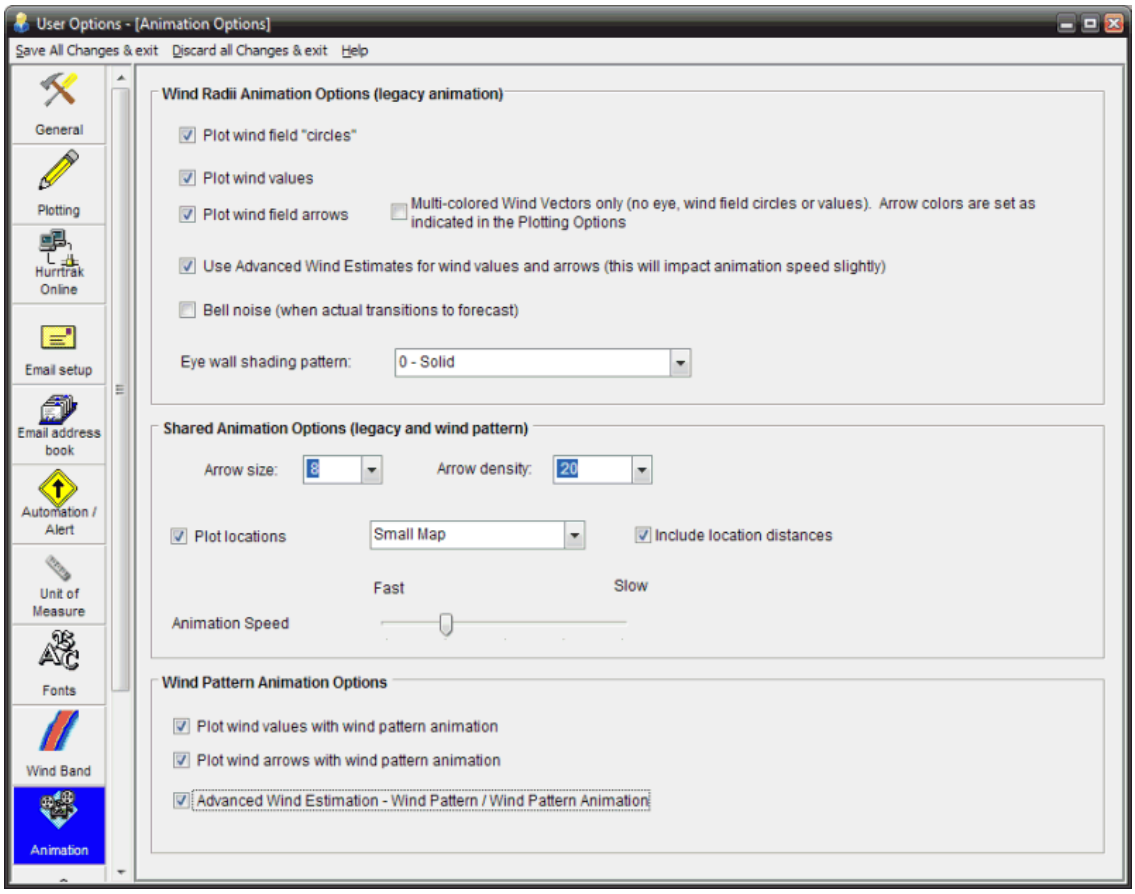
Animation options


User Options - [Animation Options]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
Wind Radii Animation Options (legacy animation)
Plot wind field "circles"
Plot wind values
Plot wind field arrows
Multi-colored Wind Vectors only (no eye, wind field circles or values). Arrow colors are set as indicated in the Plotting Options
Use Advanced Wind Estimates for wind values and arrows (this will impact animation speed slightly)
Bell noise (when actual transitions to forecast)
Eye wall shading pattern:
0 - Solid
Shared Animation Options (legacy and wind pattern)
Arrow size:
8
Arrow density:
20
Plot locations
Small Map
Include location distances
Fast
Slow
Animation Speed
Wind Pattern Animation Options
Plot wind values with wind pattern animation
Plot wind arrows with wind pattern animation
Advanced Wind Estimation - Wind Pattern / Wind Pattern Animation

These set of options control how animation sequences will appear to the user.

Display Options:

Wind Radii Animation Options:

Plot Wind Field Circles – Determines if the wind circles will plot during animation.

Plot Wind Values - Determines if wind values will be shown next to the wind arrow during animation.

Plot Wind Field Arrows – Determines if the wind arrows will plot during animation.

Multi-colored Wind vectors - Changes the wind arrow display to one which has multi-colored arrows. The size and color of the wind vector is associated with the location's wind speed. It is best to increase the arrow density when choosing this option. The arrow colors are set within the plotting options. See APPENDIX PP: Multi-Colored wind vector display on page 313 for more information.

Use Advanced Wind Estimates… – This option determines if Advanced Wind Estimation is utilized during animation. It affects only the wind arrows and values, not the wind radii forecast. In addition, this slows down the initial loop's animation speed.

Bell Noise - Determines if the PC "bell" noise will sound at the end of an animation cycle and when the actual motion changes to forecast motion.

Eye wall shading pattern - Determines if and how the storm's eye wall is depicted during animation.

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Shared Animation Options (wind radii and wind pattern):

Wind arrow size - Sets the size of the wind arrows during animation.

Wind Arrow density - Sets the density of the wind arrow pattern during animation.

Plot Locations - Determines if a location group will be shown during animation. If so, the user must select the desired location group. If location distances are to be shown, check that option.

Animation speed - This option controls the speed of animation. Select the speed that best suits your processor. Note: The first animation loop may be slow due to the building of the animation file.

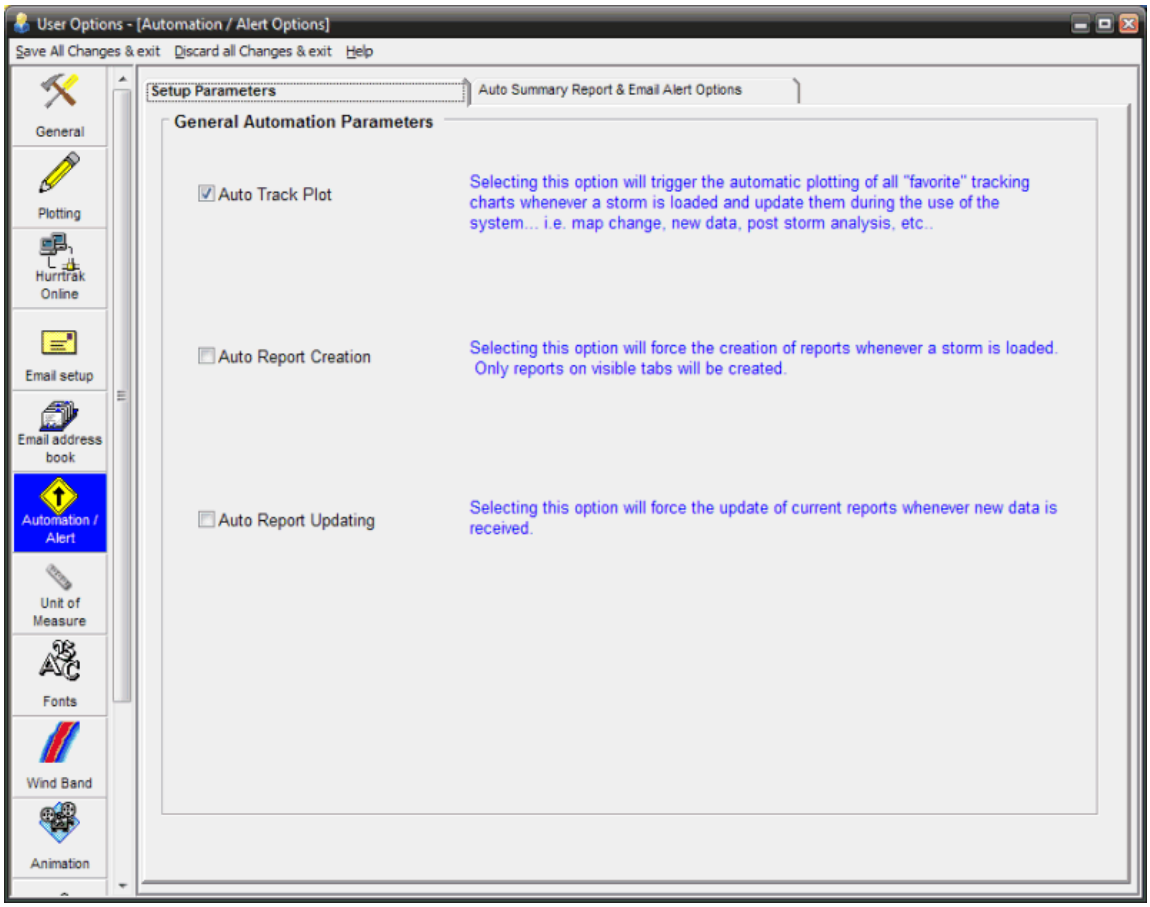
Wind Pattern Animation Options:

Plot wind values with wind pattern animation – Will plot the wind speed values while creating the Wind pattern animation.

Plot wind arrows with wind pattern animation – Will plot the wind vectors while creating the Wind pattern animation.

Advanced Wind Estimation – This option determines if Advanced Wind Estimation is utilized during the creation of wind patterns and wind pattern animation.

Automation/Alert options

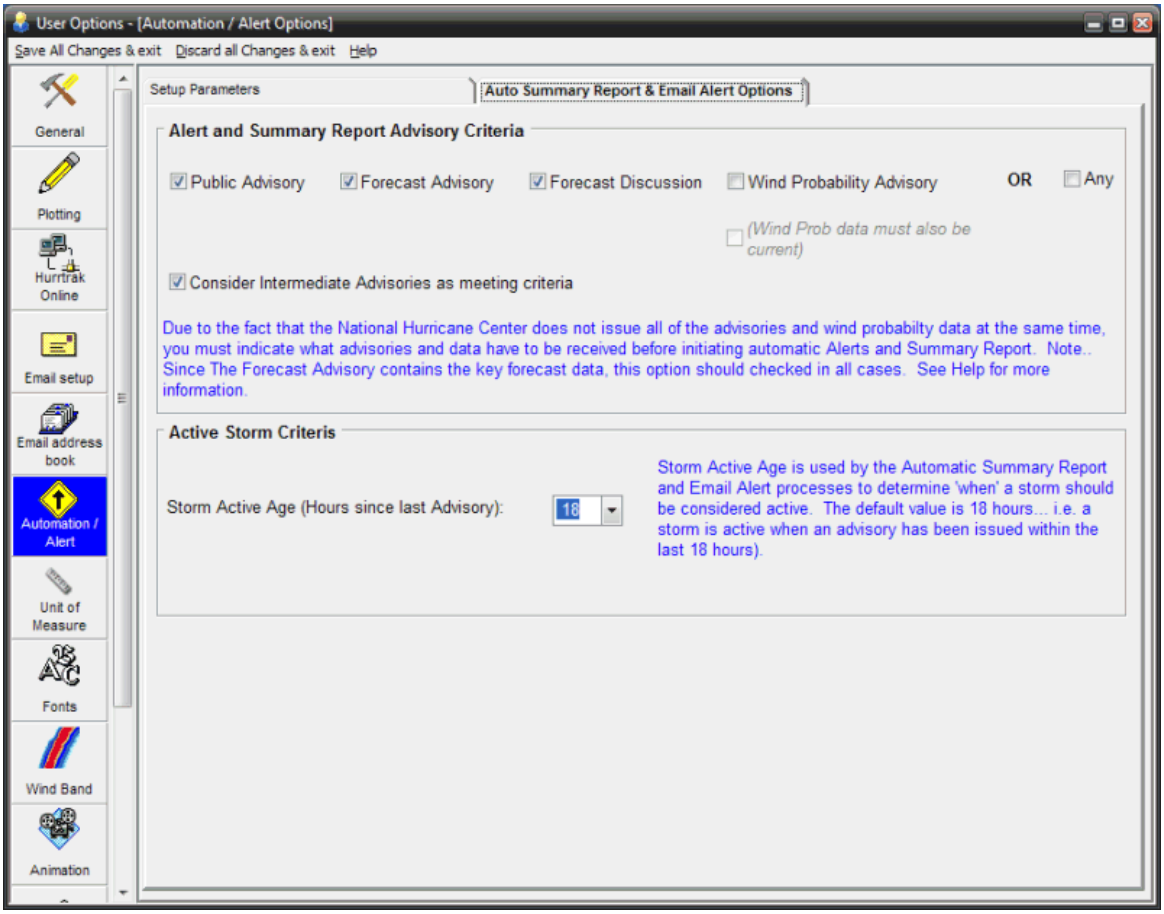

User Options - [Automation / Alert Options]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
Setup Parameters
Auto Summary Report & Email Alert Options
General Automation Parameters
Auto Track Plot
Selecting this option will trigger the automatic plotting of all "favorite" tracking charts whenever a storm is loaded and update them during the use of the system... i.e. map change, new data, post storm analysis, etc..
Auto Report Creation
Selecting this option will force the creation of reports whenever a storm is loaded. Only reports on visible tabs will be created.
Auto Report Updating
Selecting this option will force the update of current reports whenever new data is received.

These options control some of the automation features of the system including defining when "new data" has arrived… for use in the Automatic features of the system (Email Alerts, Automatic Summary Reports and "other" Automations)>

Auto Track Plot - This option will force the system to plot the latest storm track and forecast track on all of the visible "favorite" tracking chart tabs whenever a new storm is loaded or updated.

Auto Report Creation - This "turns on" the indicator that allows the system to automatically create any "previously" opened reports when a storm is loaded.

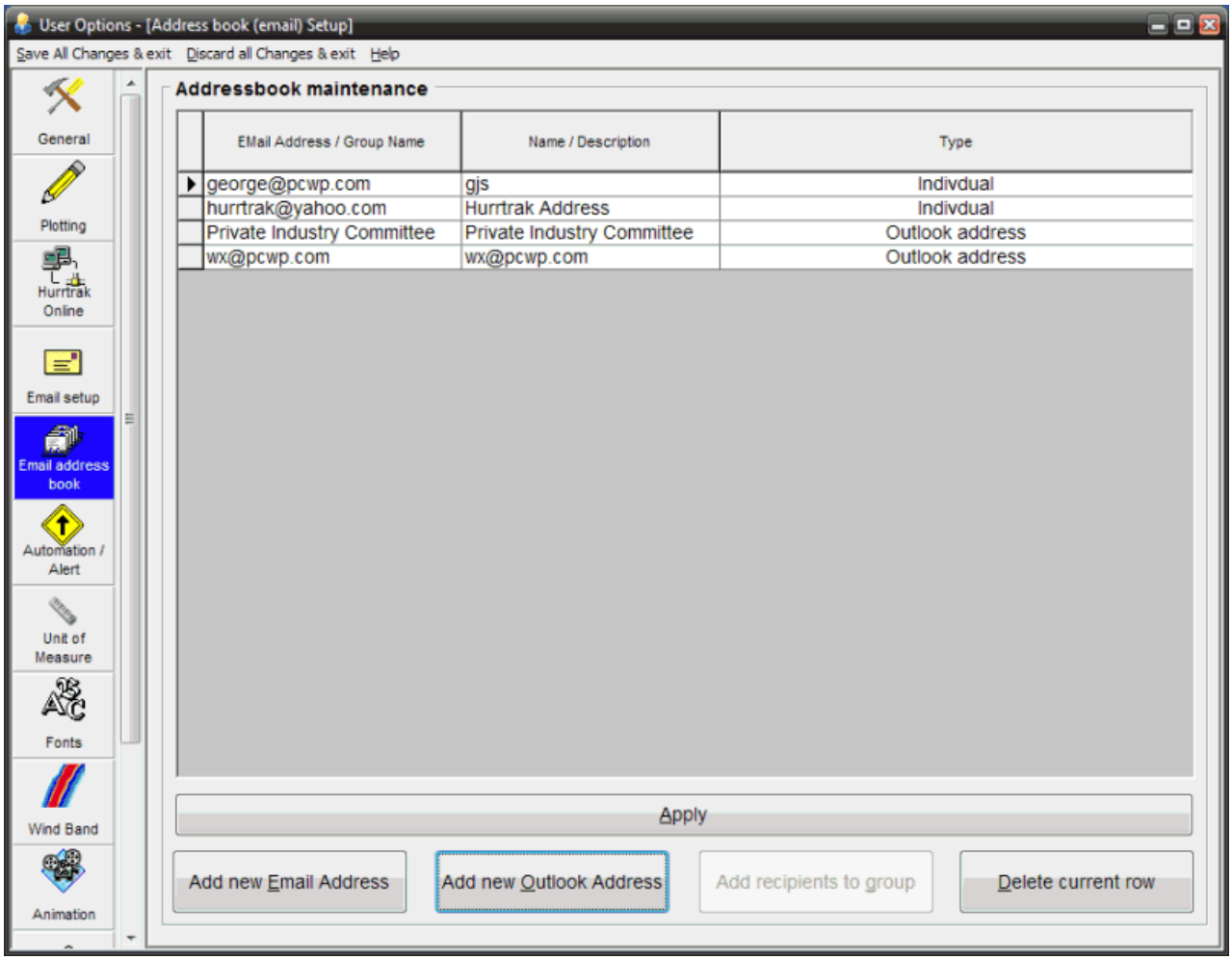
Auto Report Updating - This "turns on" the indicator that allows the system to automatically update any open reports when new data arrives via HURRTRAK - Online.


User Options - [Automation / Alert Options]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
Setup Parameters
Auto Summary Report & Email Alert Options
Alert and Summary Report Advisory Criteria
Public Advisory
Forecast Advisory
Forecast Discussion
Wind Probability Advisory
OR
Any
(Wind Prob data must also be current)
Consider Intermediate Advisories as meeting criteria
Due to the fact that the National Hurricane Center does not issue all of the advisories and wind probabilty data at the same time, you must indicate what advisories and data have to be received before initiating automatic Alerts and Summary Report. Note.. Since The Forecast Advisory contains the key forecast data, this option should checked in all cases. See Help for more information.
Active Storm Criteris
Storm Active Age (Hours since last Advisory):
18
Storm Active Age is used by the Automatic Summary Report and Email Alert processes to determine 'when' a storm should be considered active. The default value is 18 hours... i.e. a storm is active when an advisory has been issued within the last 18 hours).

Alert and Summary Report Advisory Criteria - This data allows the user to define what criteria the system should use to initiate Automated Alert and Summary Reports. We recommend the minimal selection be the Public Advisory, the Forecast Advisory, and the Intermediate Public Advisory. These advisories contain the critical current and forecast information. Be aware that selecting all of the advisories may result in a delay of any automated processing as the system waits for all of the advisories to become available. Selection of "ANY" on the other hand would cause the initiation of automatic process every time any type of new advisory becomes available. This is not recommended as multiple Alerts and Summary reports would be generated for each advisory package. *A special note about Wind Probability data… While the Wind Probability Advisory data comes in as part of the NHC advisory package with the other text advisories, the Wind Probability data can be issued at a later time. The timing of this data may lag the advisory text data. Due to this, we suggest you do not select the Wind Probability Data option until this becomes better established.*

Active Storm Criteria - Storm Active Age is used by the Automatic Summary Report, E-MAIL Alert, and Automations processes to determine when a storm should be considered active. The default value is 18 hours... i.e. a storm is active when an advisory has been issued within the last 18 hours. This value is really only meaningful when running the "automatic" processes manually since a storm is obviously active if the system creates these reports when new data is received on a storm.

Email address book



This option allows the user to define email addresses to the system. This is not required if you are exclusively using the Outlook to send email AND not using the automated features of the system (Email Alerts, Automatic Summary reports, "Other" Automations). i.e. you must define the email addresses for anyone you wish to receive these automated outputs.

Email address/ group name - The Email address of a potential recipient OR the name of a Email Group. The type of Addressbook entry is defined by the type field (Individual or Group). A typical individual email address has a name and a domain, i.e. terryforster@atlantabraves.com. A group name is a short identifier for the group, i.e. WX Group.

Name/Description - The name of the individual (if Type is an individual) or the description of the group (if Type is a group). This information is informational only and is not used by the system.

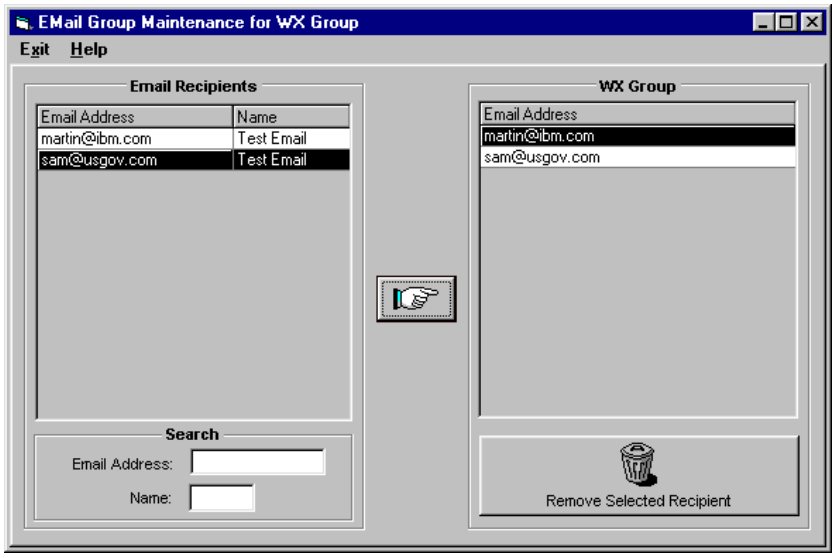
Type - Identifies the type of addressbook entry. Ind. is an individual Email recipient, while Group is a list of Email recipients.

Commands

Add new Email address **-** This option adds a new Hurrtrak Email address.

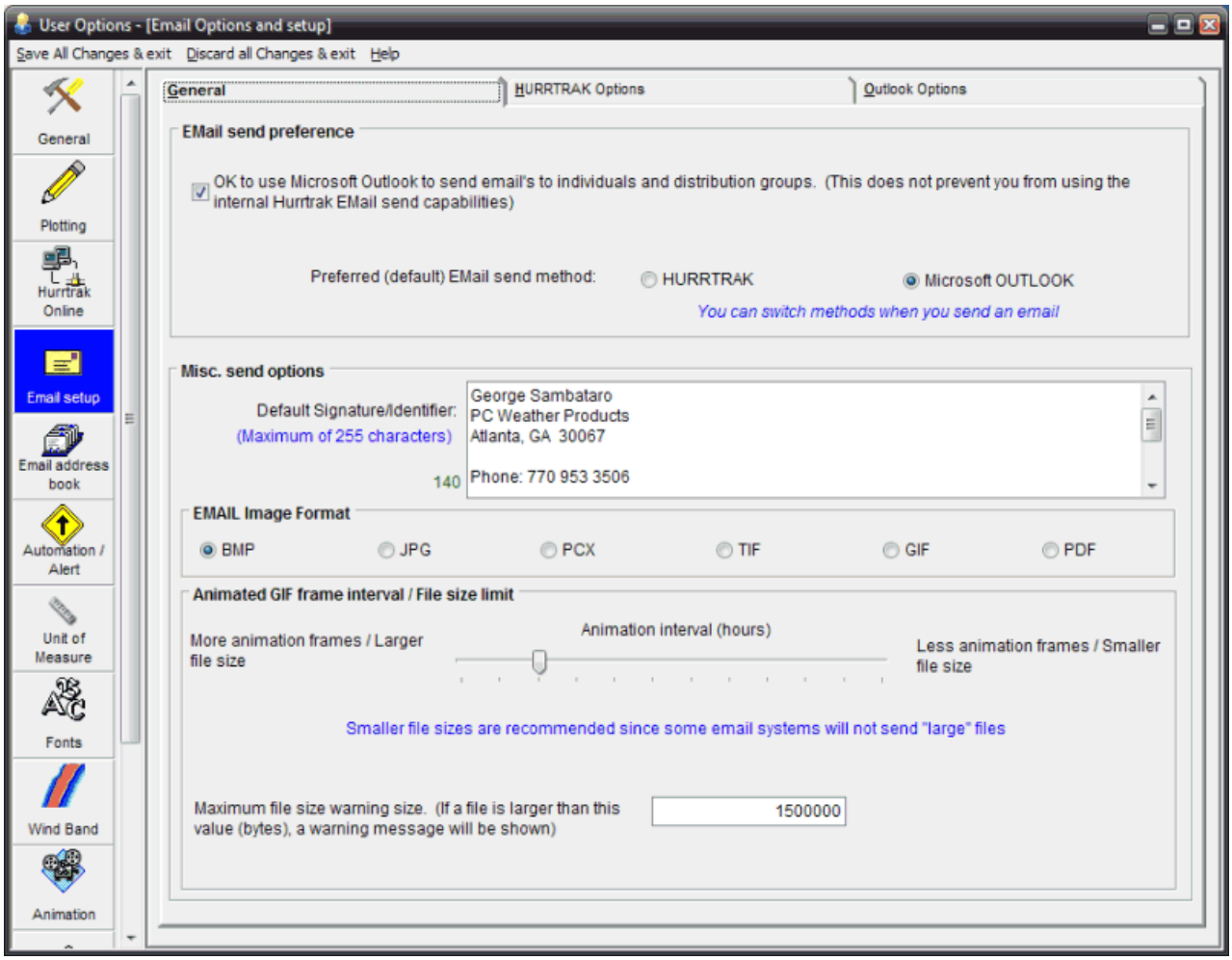
Add new Outlook address - This option adds a new MS Outlook address to the Hurrtrak Email database. This is only necessary if you plan on setting up alerts or summary reports for this Email address.

Add Recipients to Group - This option allows the user to easily associate and disassociate individual Hurrtrak Email recipients to Hurrtrak Email groups. This does not apply to MS Outlook Email addresses.



Delete Current row **-** This option deletes the selected rows (Email addresses).

Email General Setup


User Options - [Email Options and setup]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
General
HURRTRAK Options
Outlook Options
EMail send preference
OK to use Microsoft Outlook to send email's to individuals and distribution groups. (This does not prevent you from using the internal Hurrtrak EMail send capabilities)
Preferred (default) EMail send method:
HURRTRAK
Microsoft OUTLOOK
You can switch methods when you send an email
Misc. send options
Default Signature/Identifier:
(Maximum of 255 characters)
140
George Sambataro
PC Weather Products
Atlanta, GA 30067
Phone: 770 953 3506
EMAIL Image Format
BMP
JPG
PCX
TIF
GIF
PDF
Animated GIF frame interval / File size limit
More animation frames / Larger file size
Animation interval (hours)
Less animation frames / Smaller file size
Smaller file sizes are recommended since some email systems will not send "large" files
Maximum file size warning size. (If a file is larger than this value (bytes), a warning message will be shown)
1500000

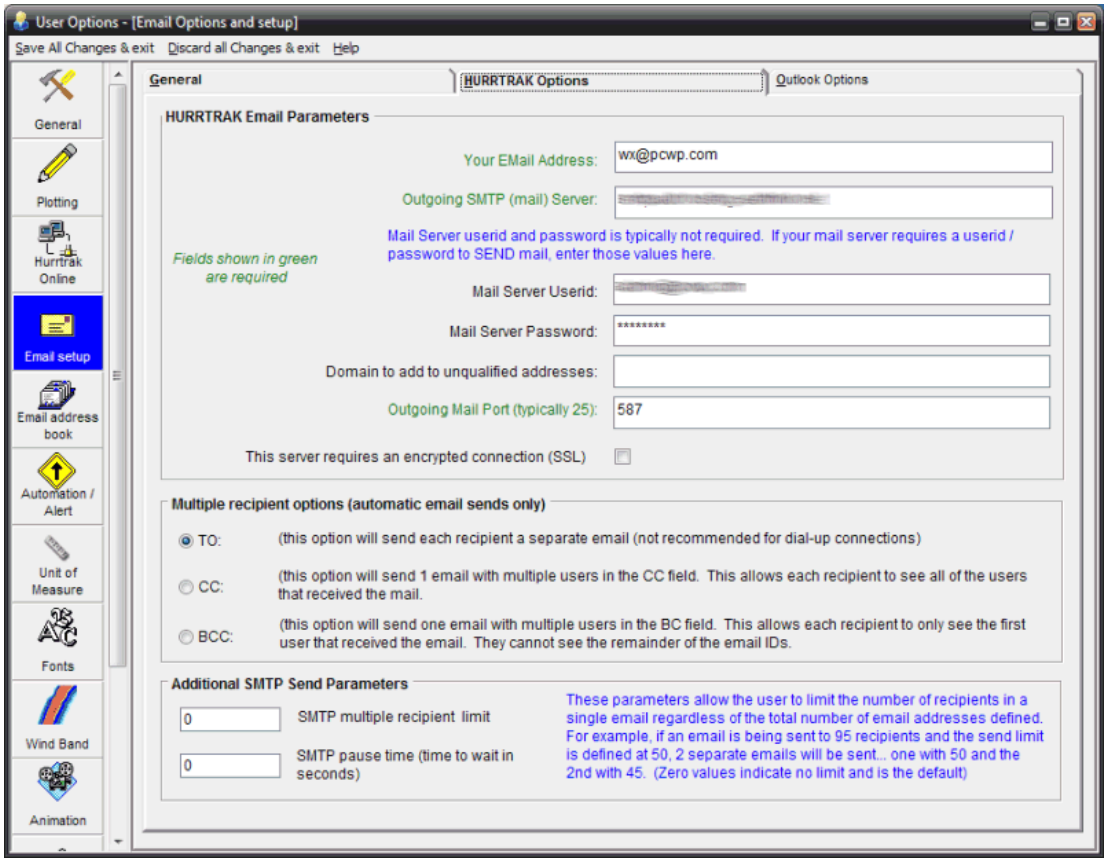
This option allows the user to define how they want to send email within the system.

Email send preference - Specifies whether to allow MS Outlook to send email from HURRTRAK and if so, the default/preferred method to send email. MS Outlook users may find it much easier to select the Outlook option, as it removes the requirement of setting up your SMTP server information, etc. When you send email, you may change the send method. This is just the default method the system will assume.

Default Signature/Identifier - Contains the default signature you would like to appear at the end of your email notices. This can be blank, if desired.

E-mail Image Format - Identifies the type of image you would like to send when attaching graphics to an email note. This applies to both manual and automatic generation of email. We recommend BMP format. For smaller file sizes, select the RLE Bitmap option in the general options. PDF is also a “non image” option for users that would rather send their images using Adobe Acrobat..

Animated GIF frame interval / file size limit - These options control the size of the animated gif file created when sending an animation sequence. You can control the animation interval by sliding the control left or right. A longer animation frame interval will result in a smaller number of frames and a smaller file size. You can also specify the "warning" file size... Any files above this limit will generate a warning message before sending to confirm that the user really does want to send a file above this size. Generally, you should avoid sending animations where the background is a satellite, radar or landsat image.


User Options - [Email Options and setup]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
General
HURRTRAK Options
Outlook Options
HURRTRAK Email Parameters
Your EMail Address:
wx@pcwp.com
Outgoing SMTP (mail) Server:
Mail Server userid and password is typically not required. If your mail server requires a userid / password to SEND mail, enter those values here.
Fields shown in green are required
Mail Server Userid:
Mail Server Password:
****
Domain to add to unqualified addresses:
Outgoing Mail Port (typically 25):
587
This server requires an encrypted connection (SSL)
Multiple recipient options (automatic email sends only)
TO:
(this option will send each recipient a separate email (not recommended for dial-up connections)
CC:
(this option will send 1 email with multiple users in the CC field. This allows each recipient to see all of the users that received the mail.
BCC:
(this option will send one email with multiple users in the BC field. This allows each recipient to only see the first user that received the email. They cannot see the remainder of the email IDs.
Additional SMTP Send Parameters
0
SMTP multiple recipient limit
0
SMTP pause time (time to wait in seconds)
These parameters allow the user to limit the number of recipients in a single email regardless of the total number of email addresses defined. For example, if an email is being sent to 95 recipients and the send limit is defined at 50, 2 separate emails will be sent... one with 50 and the 2nd with 45. (Zero values indicate no limit and is the default)

Your Email Address - Enter a valid return address that you would like to use when sending email.

Outgoing SMTP Server - This is the name of the server where you send your messages to. The name of this server is SMTP (Simple Mail Transfer Protocol).

Mail Server userid - This contains the userid needed to send email via the SMTP server. This is not required in most cases.

Mail Server Password - This is the password needed to send email via the SMTP server. In most cases this is not needed.

Domain to add to unqualified addresses - Specifies a domain to be added to unqualified names. An unqualified name is one that doesn't have an "@" sign followed by a domain name. If you address a message to someone without including their domain name, HURRTRAK automatically adds this domain to that address. This setting can be used as a time-saving device when addressing large numbers of messages to users who reside in the same domain.

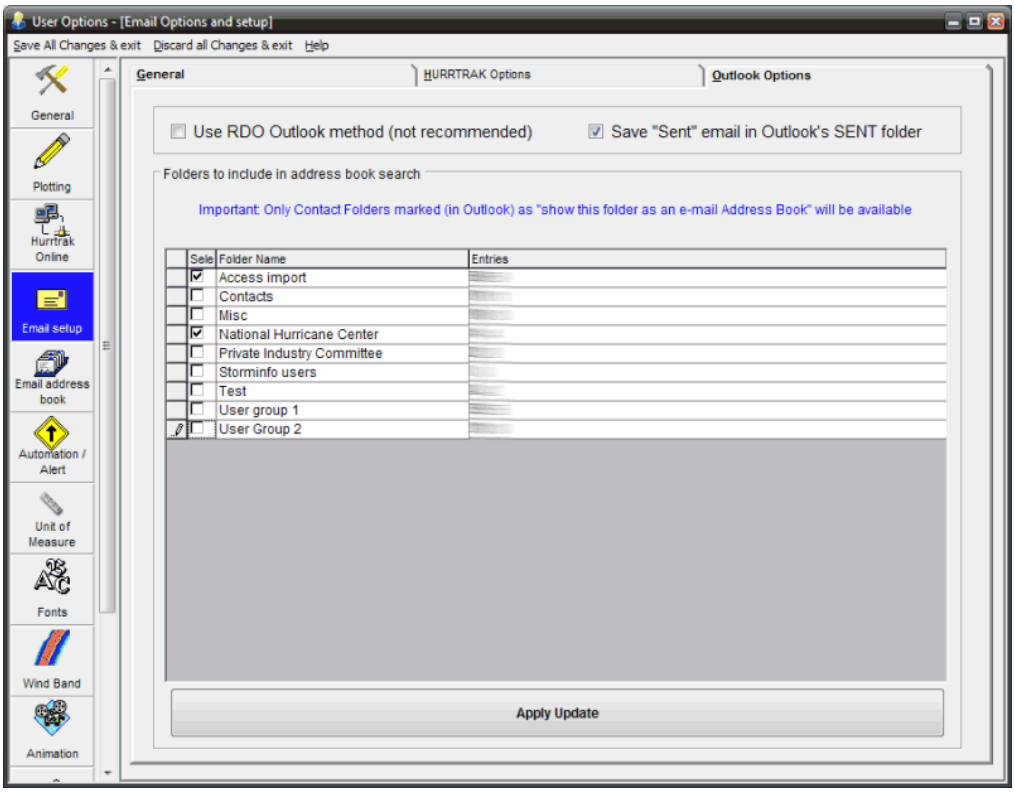
Outgoing Mail Port - Specifies the mail port that your email system uses to send mail. Typically, a value of 25.

SSL Mail Server - Specifies if your outgoing mail server requires SSL encryption.

Multiple recipient options - This field indicates how you would like to send automatic email to multiple recipients within an Email Group.
Selecting the **TO** option will send each recipient a separate email to the mail server. This is usually not recommended for a large number of recipients.
Selecting the **CC** option will send 1 email to the mail server and "copy" the remaining recipients in the group.

Selecting the **BCC** will send 1 email to the mail server and send "blind copies" to the remaining recipients.

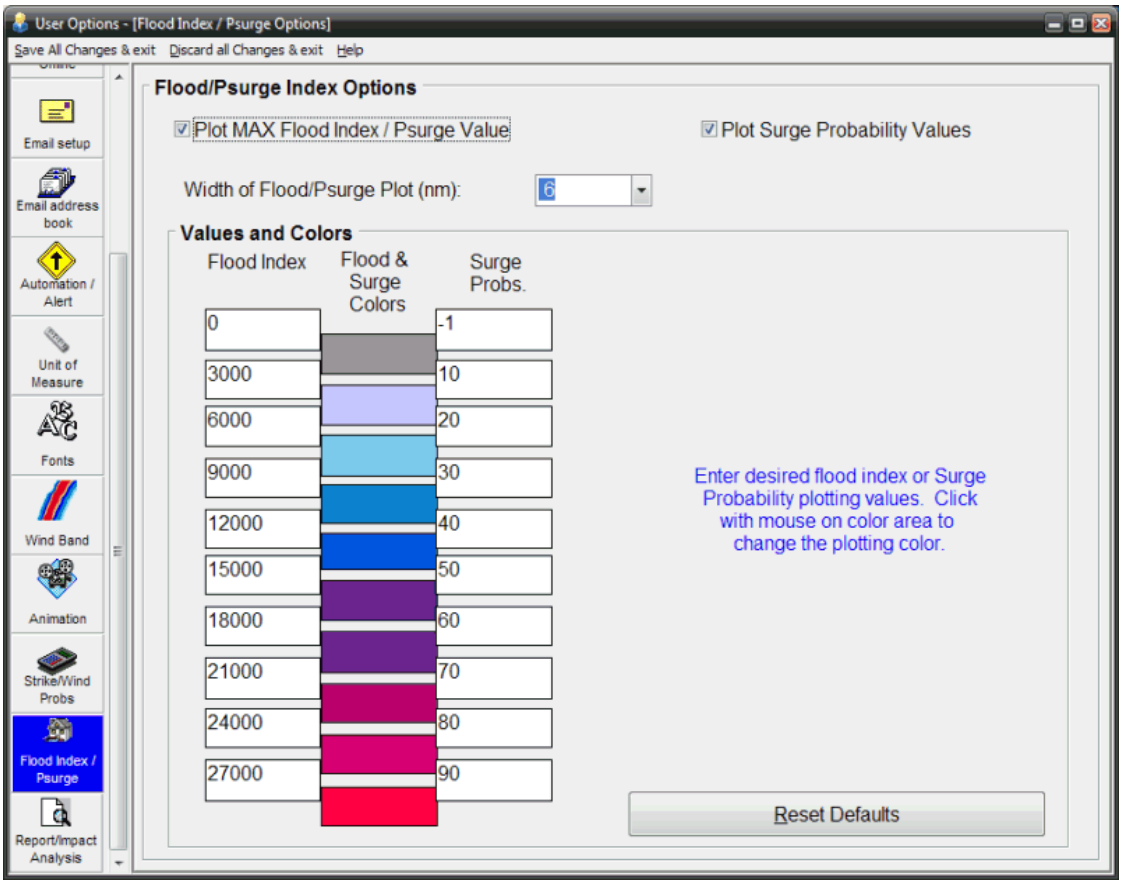
Additional SMTP Send Parameters – (This does NOT apply to email sent via MS Outlook)
These parameters allow the user to limit the number of recipients in a single email regardless of the total number of email addresses defined. For example, if an email is being sent to 95 recipients and the send limit is defined at 50, two separate emails will be sent… one with 50 and the other with 45. The two parameters available are
SMTP multiple recipient limit – max number of recipients in a send.
SMTP pause time – time to wait, in seconds, between batches.



Save Sent Option - Specifies whether e-mail send via Outlook should be saved in Outlook's SENT folder. This is useful if you would like to keep a record of all email sent from the HURRTRAK system.

Outlook Folders - Specifies the folders that the user would like to be included in the address book search when sending email. DO NOT specify very large folders (>5000 addressbook entries) as it will greatly impact the performance of this function. If you have large Contact folders, you might want to copy your "key" contacts to a separate smaller folder (for use with HURRTRAK).

Flood Index / Surge Probability Options



This option allows the user to control how the Flood Index and Surge probabilities are displayed on the system.

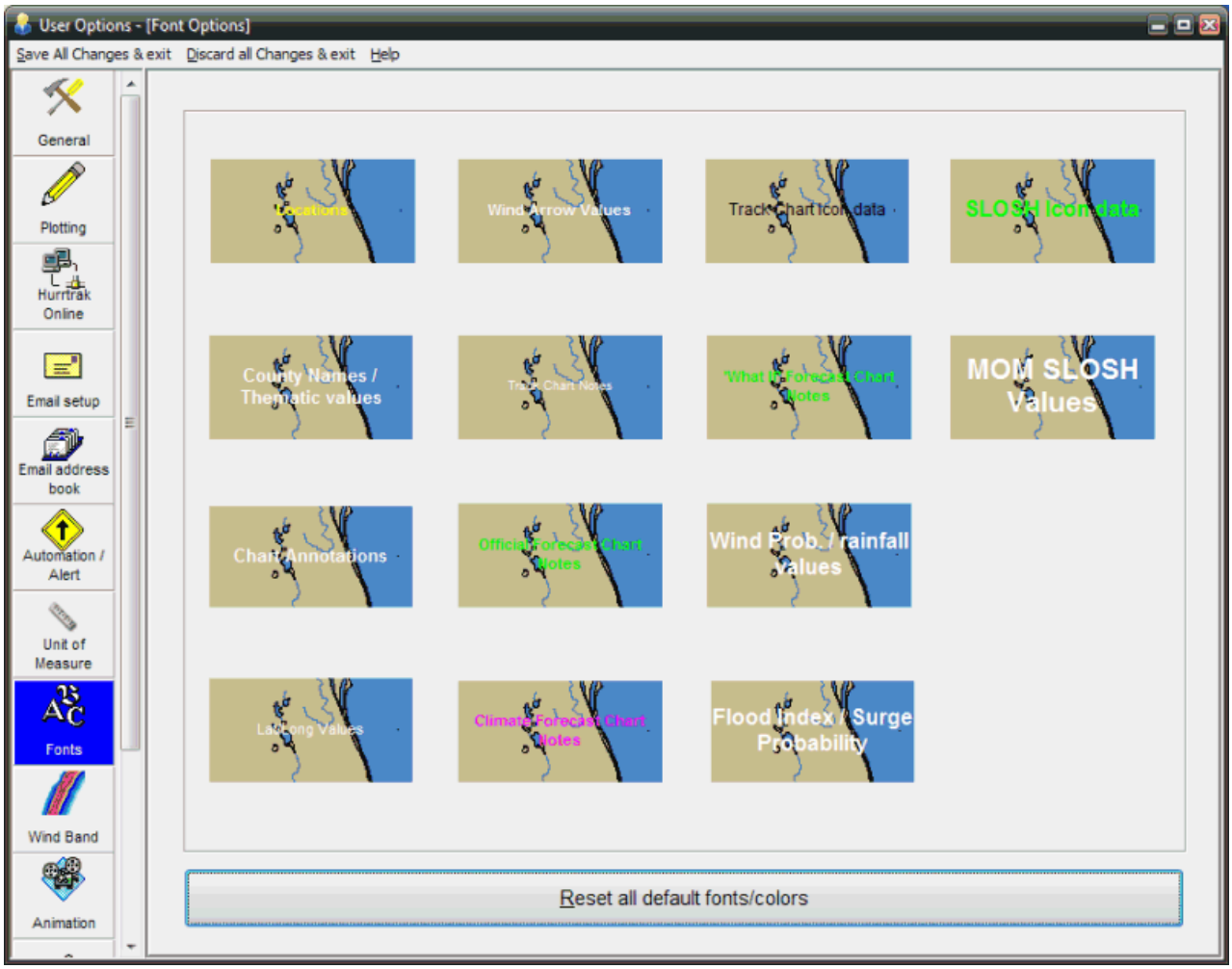
Plot max flood index / Psurge values - This option determines if the maximum flood index value will be labeled when a flood index analysis is done and whether the maximum surge probability value will be labeled when a surge probability analysis is done. Its font is controlled within the font options.

Plot Surge Probability values - This option determines if the surge probability values will be labeled, at regular intervals, when a surge probability analysis is done. Its font is controlled within the font options.

Width of Flood/PSurge Plot (NM) - This controls the width (in nautical miles) of the flood index or Psurge analysis. Widths of greater than 10 miles are not allowed, due to the degradation in the quality of the plot.

Flood Index Values, Surge Probability values and Colors - This allows the user to change the flood index and Surge Probability values and associated colors. Any positive, ascending set of values can be used and any color (within the limits of the color mode your system is set at).

Fonts Options



This option allows the user to set the text properties for the display of locations, county names, chart notes, user notes, lat./ long values, wind arrow values, flood index, SLOSH MOM and strike probability values. These properties include the font name, size, color and whether it should be printed in bold and/or italic.

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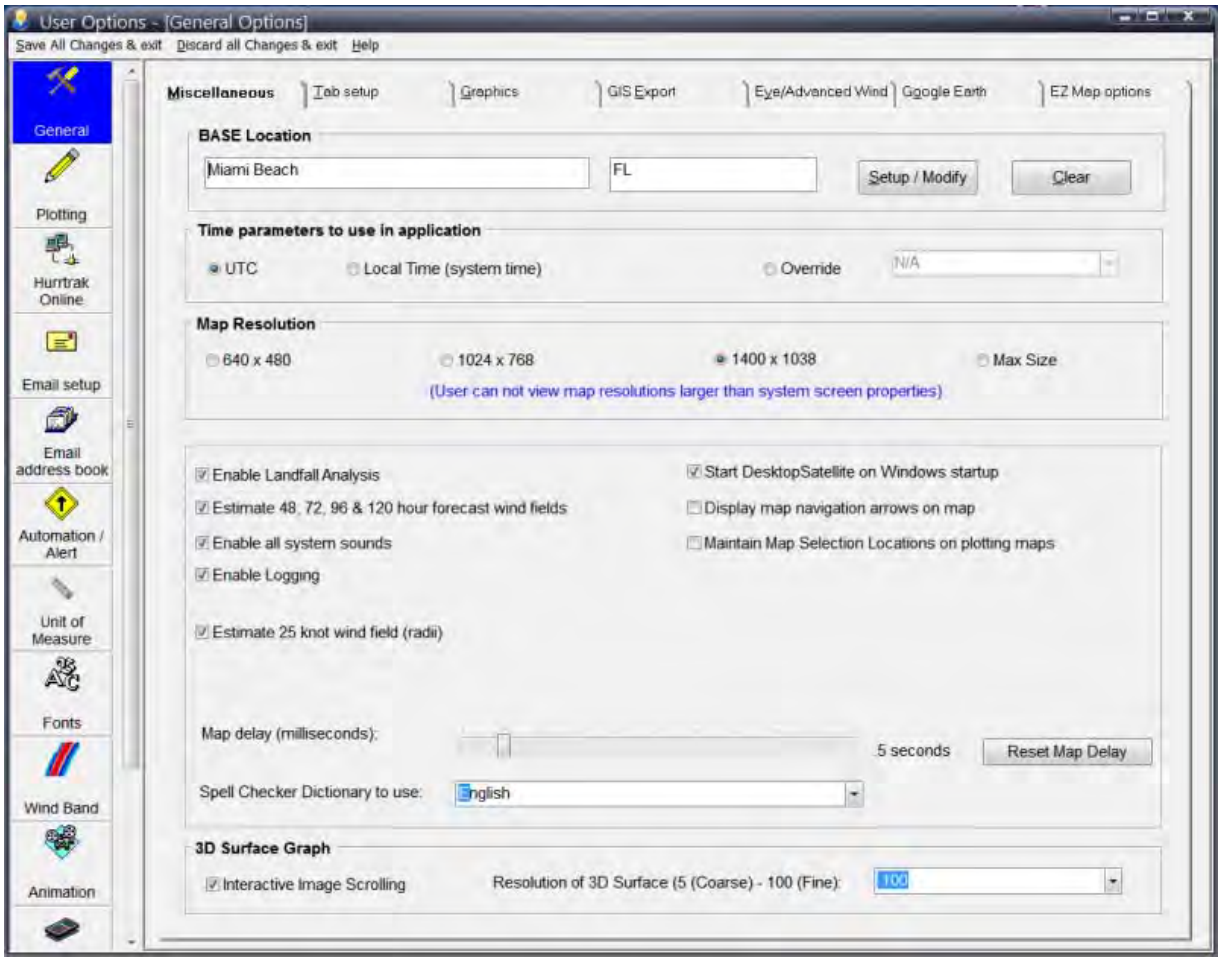
General Options



This is a general set of options ranging from Google Earth settings, GIS, Graphics, Tab appearance, AWE setup and a myriad of other options.

BASE Location - A user can identify a primary "Base" location, which typically represents the users operating location. It can be a "location", County or Zip Code. This location is used to automatically update the risk/impact tab. Additional “base” locations can be defined by adding locations to the location group “Base Locations”… via the System Setup option.

Time - Identifies the time zone the user would like to use. UTC represents the global standard that is used by the NHC in their advisories and is time zone independent.

Map Resolution - Other than the pan and zoom mapping, the system includes 3 sizes of standard tracking charts... 640 x 480 pixels, 1024 x 768 and 1400 x 1048 pixels. You have 3 options. If you would like to work with the smaller, less detailed charts, then select the 640 x 480 option. If you would like to use the larger, more detailed charts, then select the 1024 X 768 option or 1400 x 1048. Finally, if you change screen resolutions often and would like to use the largest available at all times, then select the 3rd option. Keep in mind that the HURRTRAK system will not display charts that are larger than the screen resolution you are working in. I.E. If you select 1400X1048 and only have your Windows screen setting at 1024 X 768, then the HURRTRAK system will use the 1024 X 768 charts.

Landfall Analysis - Selecting this option forces the system to recognize when the storm is forecast to make landfall and make adjustments to the official forecast. Landfall is defined as the first hourly position over land that is followed by at least four more overland positions. CAUTION: Please be aware that when you use this feature, you are changing the official forecast data. The assumption

that a storm will maintain its intensity until landfall is not always valid. For more information, see Common Questions.

Estimate 48, 72, 96 and 120 hour forecast winds - Selecting this option forces the system to estimate the 34 and 64 knot wind field for the 48, 72, 96 and 120 hour forecast position. A hierarchy of algorithms is used to do the estimate. **CAUTION: Please be aware that when you use this feature, you are adding information to the official forecast data. Estimates are just a guess based on past patterns of wind fields and should not be relied on.**

Enable all system sounds - This option turns on/off the system sounds**.**

Enable Logging - This option "turns on" system logging. It reports on the status of incomplete automation options, as well as start and ending times of sessions

Do not calculate strike probabilities - This option "turns off" the system calculation of strike probabilities. This may be required on 64 bit operating systems.

Estimate 25 knot wind radii - This option allow the system to estimate the wind speeds around the storm down to 25 knots, rather than the 34 knot wind radii that the National Hurricane Center provides. This will be reflected in the wind pattern, wind field analysis and impact reports.

Spell Checker Dictionary - This option "turns on" and selects the language you would like to use for spell checking. The options are None, English and Spanish.

Display Map Navigation on Map - This option controls whether the user wants visible map navigation aids for panning a tracking chart map. This can be set based on user preference, but is not enabled by default.

Maintain Map Selection Locations on plotting maps - This option allows the location names that are visible on the Map Selection Tab to also appear on all tracking chart maps generated from this tab. This is not enabled by default.

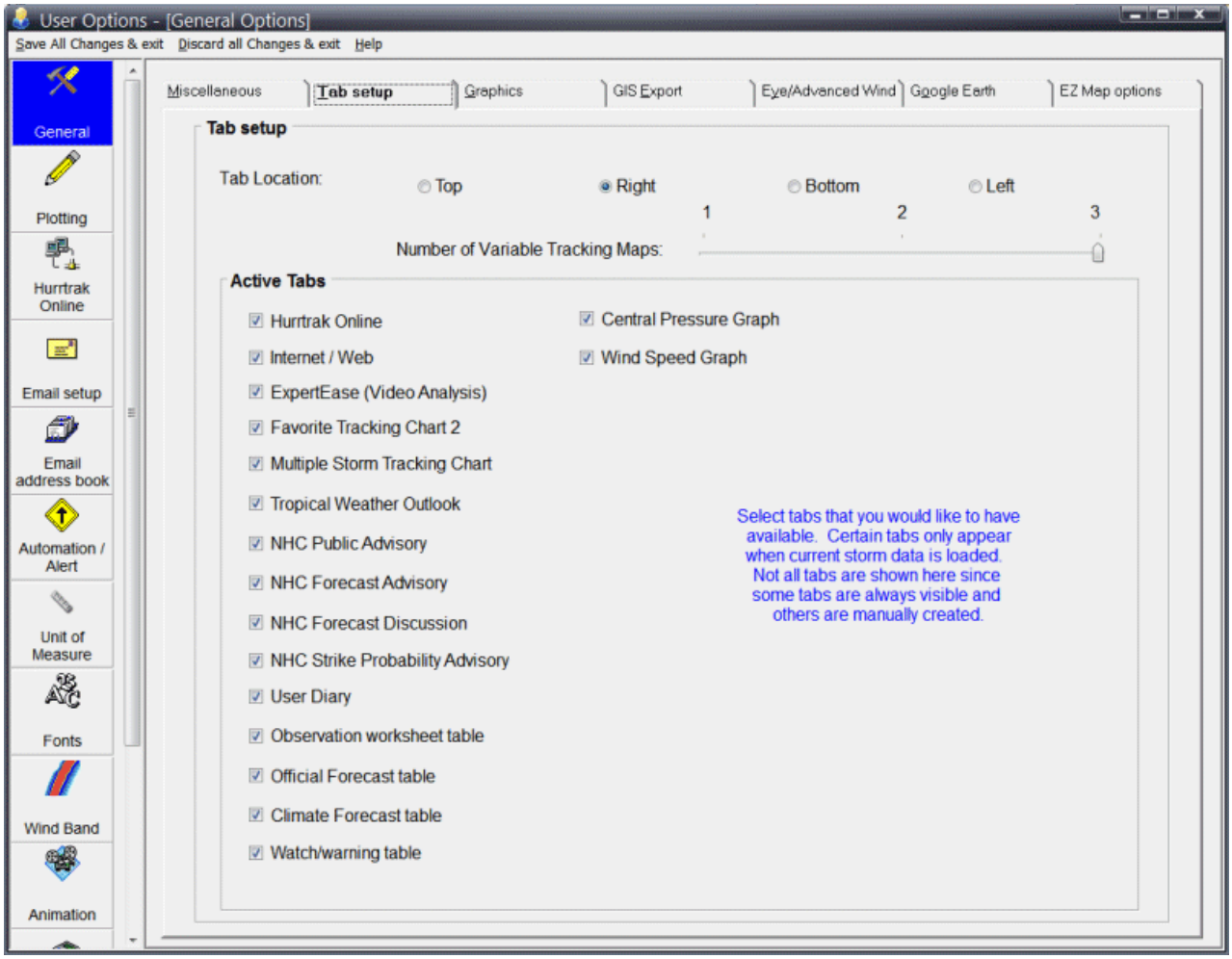
Map Delay - This option controls the delay, in seconds, that the system will use when plotting a new panned or zoomed map. Depending on your system's video capabilities, you may have to adjust this slightly upward to allow the system time to plot the land masses correctly.

Start Desktop Satellite on Windows Startup - This option "turns on" the Desktop Satellite program which will update the desktop background image with a current satellite image. We recommend that you set the windows display properties to CENTER the image.

3D Options:

3D Image Interactive Image Scrolling - This determines if the 3D surface graph will “redraw” every time the horizontal or vertical controls are changed. Unless you are running a very fast processor or have the resolution set very low, this option should remain unchecked. Selecting the OK command will cause the graph to redraw instead.

Resolution of 3D surface graph - This sets the resolution of the 3D surface graph. High values will cause very slow responses and more detail, while low values will allow for faster response and less detail.

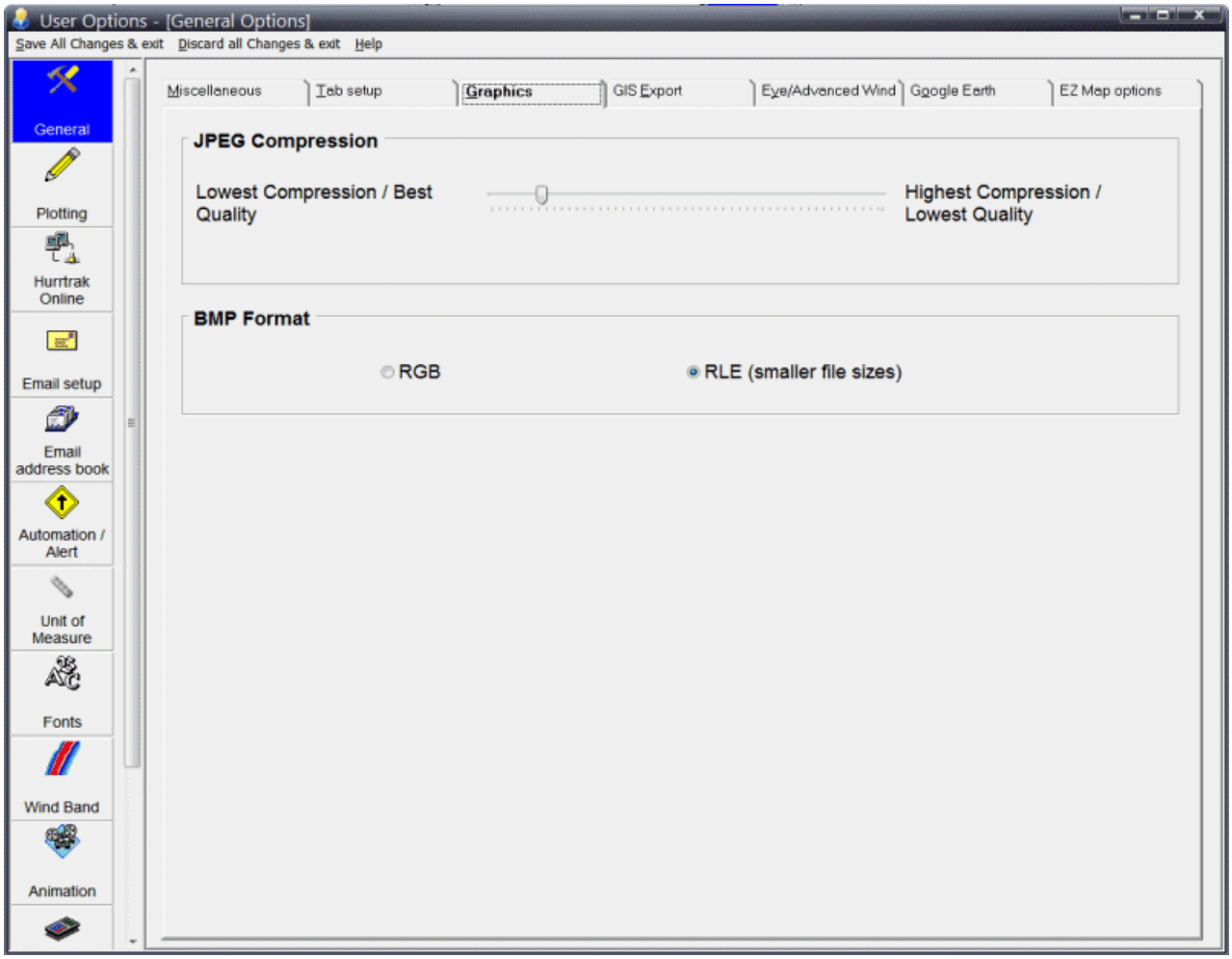


TAB Location - This option allows the user to define the location where the tab labels will appear.

Number of Variable Tracking Maps - This slide control allows the user to specify the maximum number of variable maps allowed. The valid range is 1 to 3.

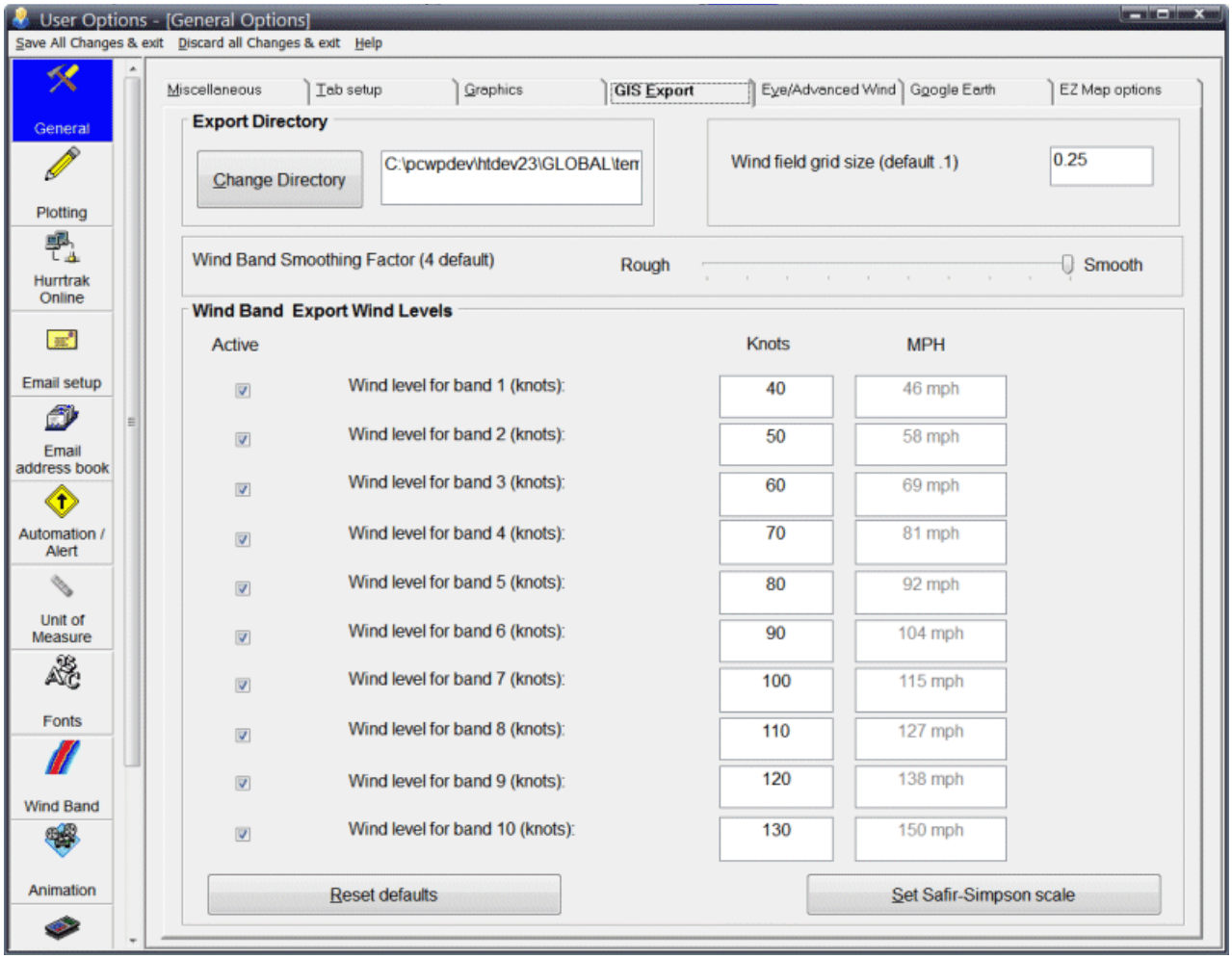
Active Tabs - This area allows the user to specify which of the optional tabs they would like to activate/deactivate. By deactivating a tab, it will not be able to be viewed until activated again by the user. This is useful when a user never wants to see certain information shown on a particular tab. Otherwise we recommend that you keep most of these tabs active.

.



JPEG Compression - When images are saved in JPG format, the user can control the compression/quality factors used. The higher the compression, the lower the image quality and vice-versa. The JPEG format is best suited for compressing the size of high-color images. HURRTRAK images do not contain many colors, so the JPEG format is not recommended. Instead, use the RLE BMP format or GIF.

BMP Format - When images are saved in BMP format, the user can control whether to save as RGB or with RLE compression. Most applications accept RLE type bitmap files, so this is recommended due to the much smaller file sizes.

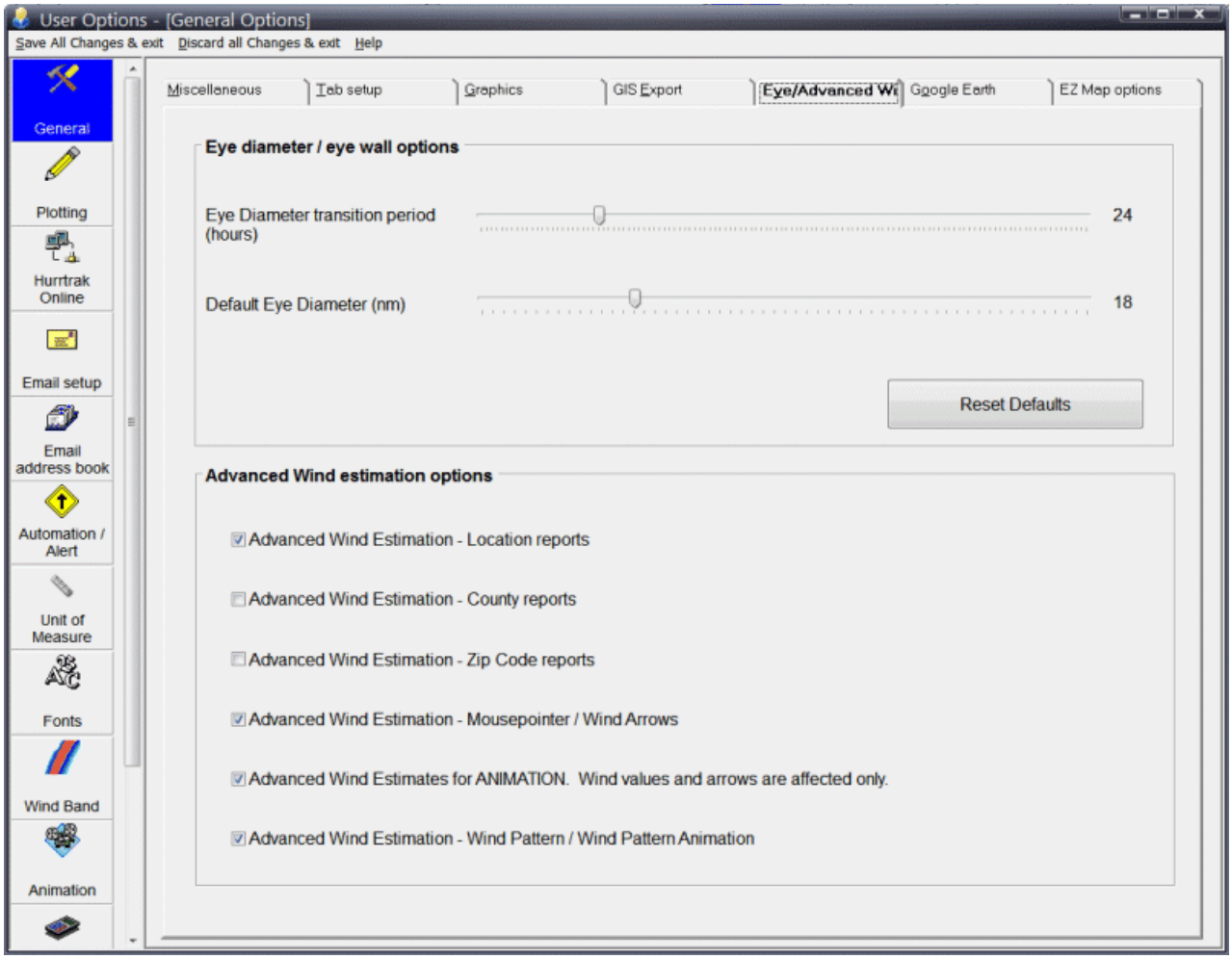


GIS Wind Band Export Directory - This option allows the user to identify the directory location to build the GIS wind band export files. If this is left blank, it will default to the application's Temp directory.

Wind Field grid size - This value determines the density of the exported Wind Field Shape file. The default value of .1 will generate a point value at every .1 degree of latitude and longitude. This would result in 100 points per 1 degree square. Hurrtrak Advanced only.

Wind Band Smoothing Factor - This factor determines how much smoothing to apply to the exported wind band data and applies to both the text data export and Shape File export (Advanced). If you choose a smoothing factor that causes wind band lines to intersect, then this value should be reduced.

Export Wind Levels - This option allows the user to identify the 10 wind band levels used when creating the GIS wind band export files. It must be entered in knots (MPH are shown for convenience)



<u>Eye Diameter Options:</u> These options allow the system to take into account storms with very small or very large eye diameters as they progress through the forecast period.

Eye Diameter Transition Period - This option works with the default eye diameter value. It defines the number of hours, into the forecast period, that it will take for a storm's non-default eye size to transition to the default size. The system uses this information to perform forecast wind estimations.

Default Eye Diameter - This option defines the default, or normal, eye diameter size. It works with the prior "transition period" option.

<u>Advanced Wind Estimation Options:</u> These options define how and where the system will use Advanced Wind Estimation.

Advanced Wind Estimation (Locations) - This option activates the Advanced Wind Estimation for all Location and Map Select Location reports.

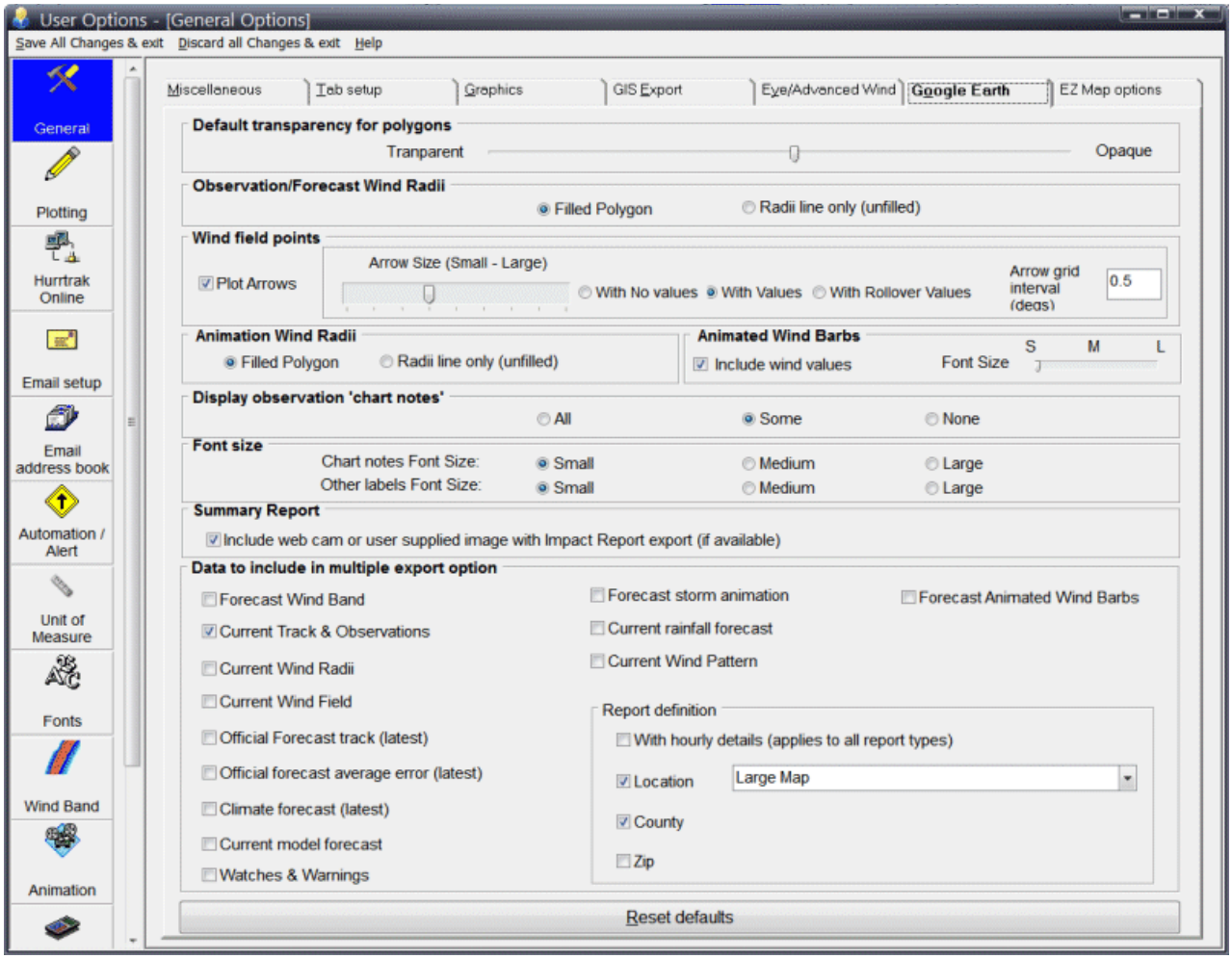
Advanced Wind Estimation (Counties) - This option activates the Advanced Wind Estimation for all counties. This should be used with great caution as countywide wind estimation may not be valid for many coastal counties.

Advanced Wind Estimation (Zips Codes) - This option activates the Advanced Wind Estimation for all counties. This should be used with great care as zip code wide wind estimation may not be valid for many coastal zip codes.

Advanced Wind Estimation Mousepointer/Wind Arrows - This option activates Advanced Wind Estimation for the mousepointer/wind arrow and Wind Pattern displays.

Advanced Wind Estimation for animation - This option activates Advanced Wind Estimation for the Animation wind arrow displays.

Advanced Wind Estimation for Wind Pattern / Wind Pattern Animation - This option activates Advanced Wind Estimation for the Wind Pattern displays and Wind Pattern Animation



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Default transparency for polygons – This determines how transparent polygons will appear when exported to Google Earth (KML). Polygon data includes such data as wind radii and wind bands.

Observation/Forecast Wind Radii – This determines if exported wind radii appear as an outer ring only (unfilled) or as a filled area (filled polygon).

Wind Field Points – One of the export options is to export a grid of observed or forecast wind points across a storm. The user has the option of display wind barbs which represent the wind speed and direction and/or the values at each grid point. You can also select to only have the wind speed value appear when you roll your mouse over the point. It may be best to experiment with this setting to determine what you prefer. Since performance may be somewhat impacted with plotting all of the values, the default is mouse activated values.

Animation Wind Radii - This determines if exported wind radii during animation will appear as an outer ring only (unfilled) or as a filled area (filled polygon).

Animated Wind Barbs - This determines if wind values will be plotted by Google Earth and the size of the font used to plot the wind values.

Display observation 'chart notes' - This allows the user to control the amount, if any, of the chart notes to appear next to a storms observation points. ALL will obviously show all of them, SOME will show every other one, and NONE is self explanatory. This does not apply to forecast points.

Chart Notes font size - This controls the default font size of the chart notes.

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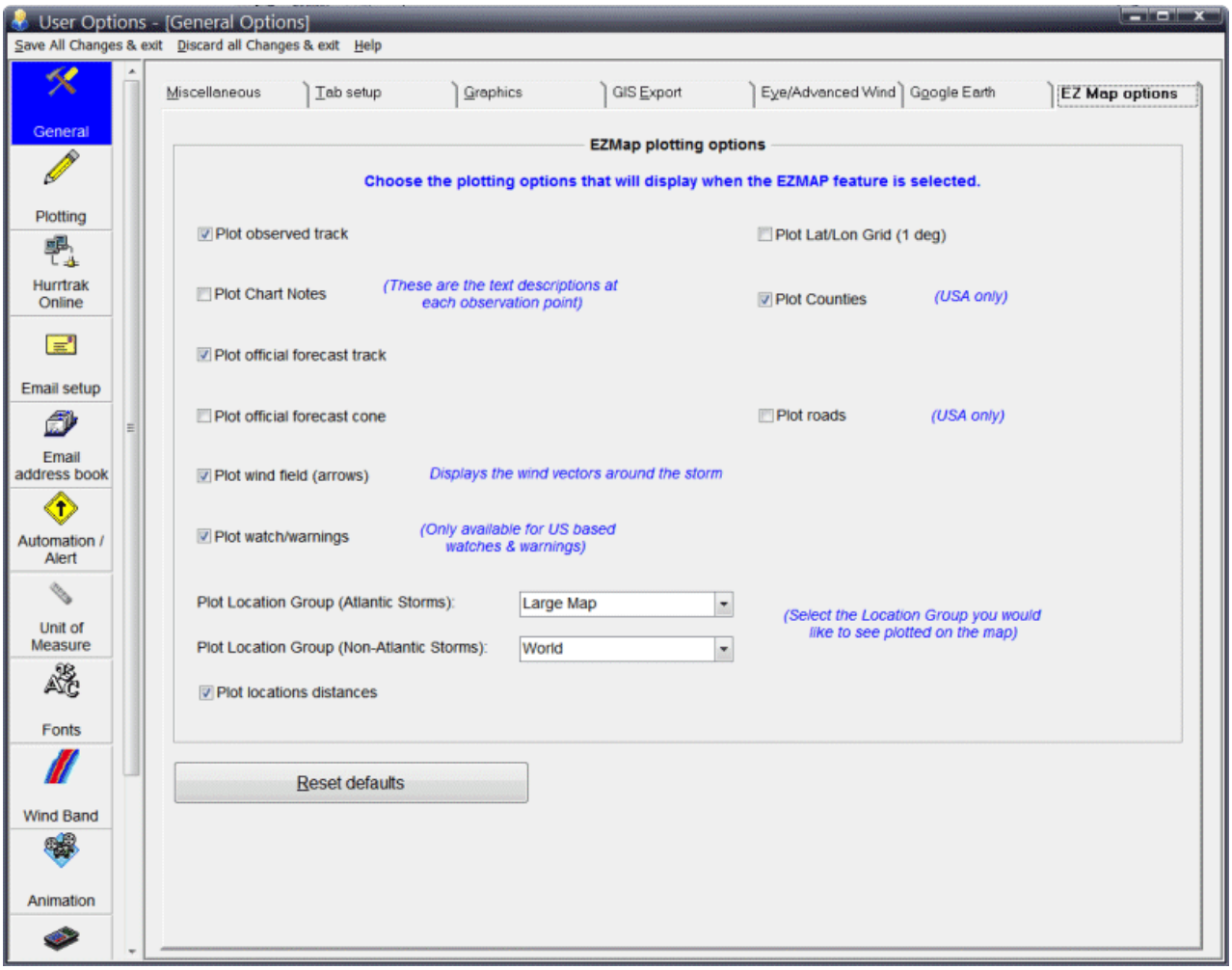
Other labels font size – This controls the font size of other labels displayed by Google Earth. They can sometimes be adjusted within the Goggle Earth interface.

Include web cam / local images - This option determines if either web cam or user-supplied images are included when exporting summary impact report information to Google Earth. See page 330 for more information.

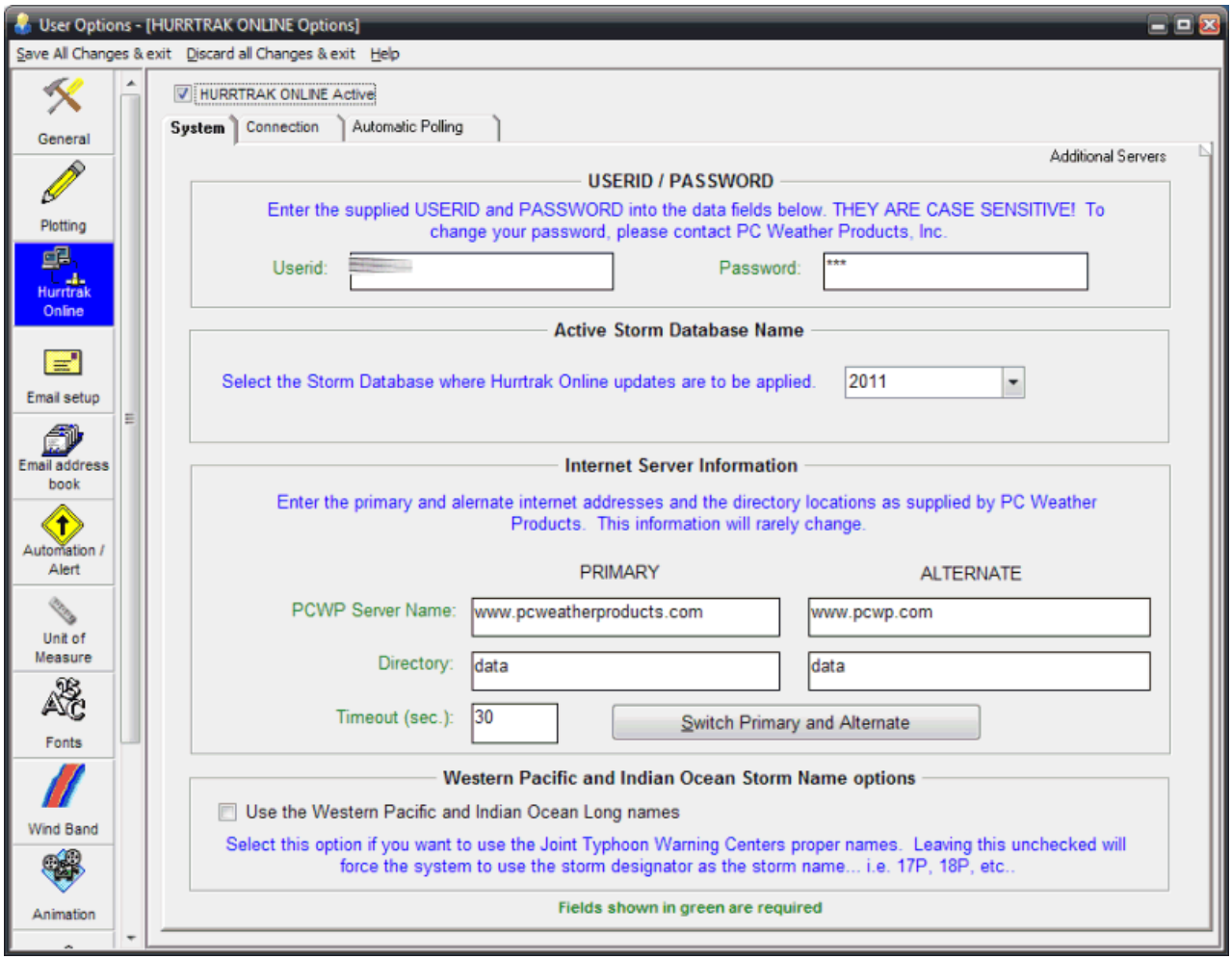
Data to include in multiple export option – This set of options has to do with the Google Earth "ALL Selected Outputs function". This feature allows multiple GE exports be created with a single action. The exports available through this function are described below. All checked options will be exported, while unchecked ones will not be. We do not suggest you select all outputs unless truly necessary. The automatic export options include the following:

Forecast Wind Band – This will export the forecast wind band. Not suggested as part of multiple output as it may take several minutes to complete.
Current Storm Track & Observations
Current Wind Radii
Current Wind Field
Official Forecast Track (latest)
Official Forecast Average Error (latest)
Climate Forecast
Current model forecast
Watches & Warnings
Forecast Storm Animation
Current rainfall forecast (3 days)
Current Wind Pattern
Forecast Animated Wind Barbs
Reports – This will create an impact report for a set of locations, all counties, all zip codes based on the selections chosen.



This set of options controls what will be plotted when selecting the EZ Map option. Please note that selecting official forecast cone, counties or roads may cause the map plotting to take a few seconds longer. Note: Non-Atlantic storms can only be plotted with the Global versions of the system.

Hurrtrak Online Options


User Options - [HURRTRAK ONLINE Options]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
HURRTRAK ONLINE Active
System
Connection
Automatic Polling
Additional Servers
USERID / PASSWORD
Enter the supplied USERID and PASSWORD into the data fields below. THEY ARE CASE SENSITIVE! To change your password, please contact PC Weather Products, Inc.
Userid:
Password:
***
Active Storm Database Name
Select the Storm Database where Hurrtrak Online updates are to be applied.
2011
Internet Server Information
Enter the primary and alernate internet addresses and the directory locations as supplied by PC Weather Products. This information will rarely change.
PRIMARY
ALTERNATE
PCWP Server Name:
www.pcweatherproducts.com
www.pcwp.com
Directory:
data
data
Timeout (sec.):
30
Switch Primary and Alternate
Western Pacific and Indian Ocean Storm Name options
Use the Western Pacific and Indian Ocean Long names
Select this option if you want to use the Joint Typhoon Warning Centers proper names. Leaving this unchecked will force the system to use the storm designator as the storm name... i.e. 17P, 18P, etc..
Fields shown in green are required

This option allows the user to define their Hurrtrak Online information to the system. It includes userid, password, update schedule and specific connection parameters such as proxy server definition.

USERID/Password – This is where you enter your HURRTRAK ONLINE userid and password assigned by PC Weather Products.

Active Storm Database Name - This option allows the user to select the database in which all current and manually downloaded data will be loaded. It is recommended that this match the current year.

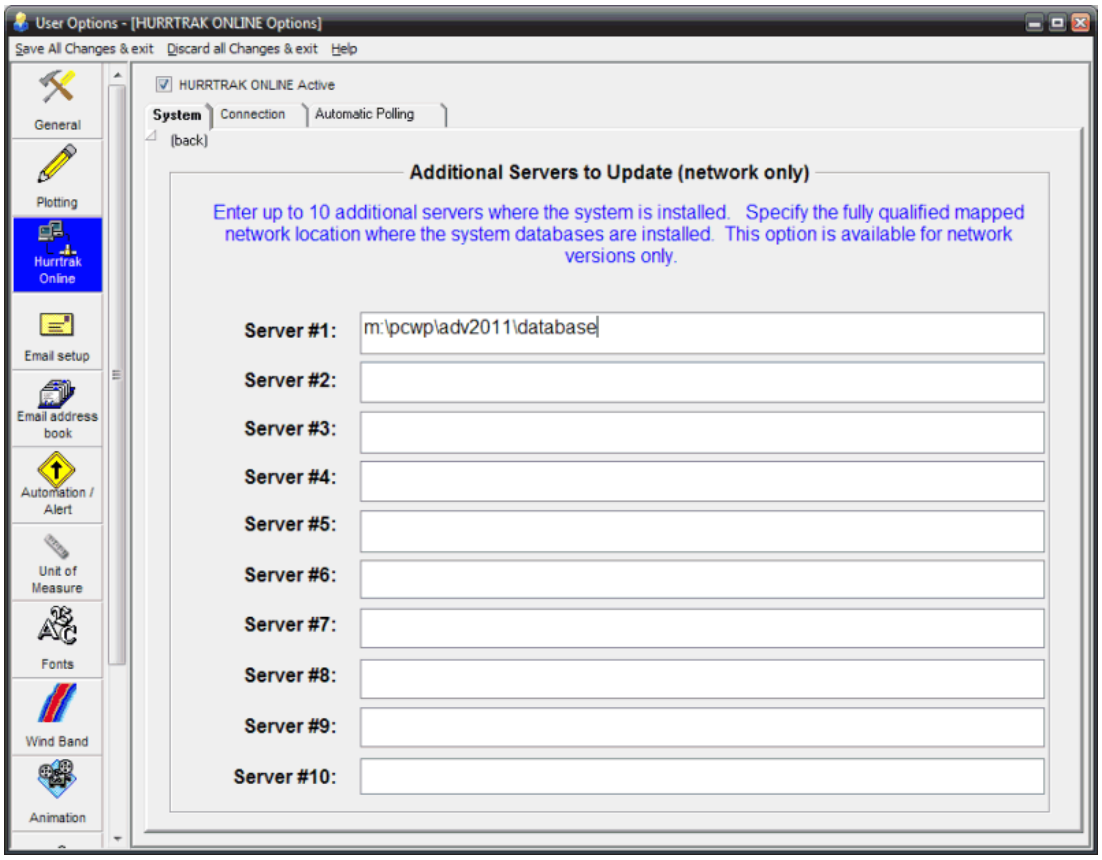
PCWP Server Name - Enter the primary and secondary Internet server address supplied to you by PC Weather Products. This information will rarely change

Directory - Enter the primary and secondary Internet server directory supplied to you by PC Weather Products. This information will rarely change.

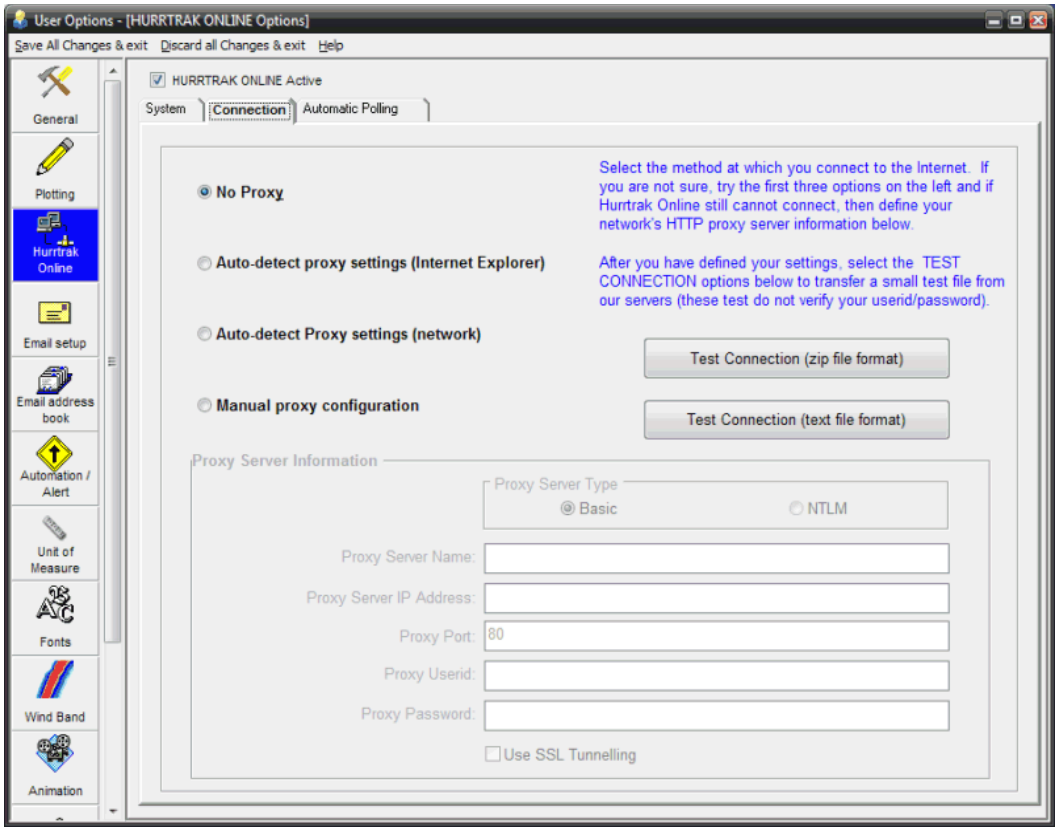
Timeout - This represents the maximum amount of time the system will wait for an online task to complete. Currently, this parameter is ignored as all timeouts are set to 60 seconds. This may be changed in future versions.

Western Pacific & Indian Ocean Storm Name option – Selecting this option will force the system to use the long names assigned by the JTWC rather than the number/letter identifiers. i.e. Monica rather than 23P. This only applies to the Global Versions of the Hurrtrak Software.

Note regarding Primary and Secondary servers: If the system fails to successfully retrieve data from the primary server, it will AUTOMATICALLY switch to the alternate server. The user does not need to request this switchover.



Additional Servers - This option, which only applies for Network versions of the system, allows the user to set up to 10 additional servers where HURRTRAK is installed. In this way, one Hurrtrak Online update session can update the databases on several servers.


User Options - [HURRTRAK ONLINE Options]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
HURRTRAK ONLINE Active
System
Connection
Automatic Polling
No Proxy
Auto-detect proxy settings (Internet Explorer)
Auto-detect Proxy settings (network)
Manual proxy configuration
Select the method at which you connect to the Internet. If you are not sure, try the first three options on the left and if Hurrtrak Online still cannot connect, then define your network's HTTP proxy server information below.
After you have defined your settings, select the TEST CONNECTION options below to transfer a small test file from our servers (these test do not verify your userid/password).
Test Connection (zip file format)
Test Connection (text file format)
Proxy Server Information
Proxy Server Type
Basic
NTLM
Proxy Server Name:
Proxy Server IP Address:
Proxy Port:
80
Proxy Userid:
Proxy Password:
Use SSL Tunnelling

Proxy Selection – Select the type of connection required for your system to access the internet (HTTP retrieves). Start with the NO Proxy setting and then try the 2 Auto Detect options, testing the connection with each option. If the test connection fails, then manually define your Proxy server information.

The manual options include…

Proxy Server Type - This option specifies whether your HTTP proxy server is an NTLM type or a basic type. Check with your network administrator for this information.

Proxy Server Name - *This field contains the domain name of your HTTP proxy server. If this is entered, you do not need to enter information into the proxy server IP address field. Check with your network administrator for this information*

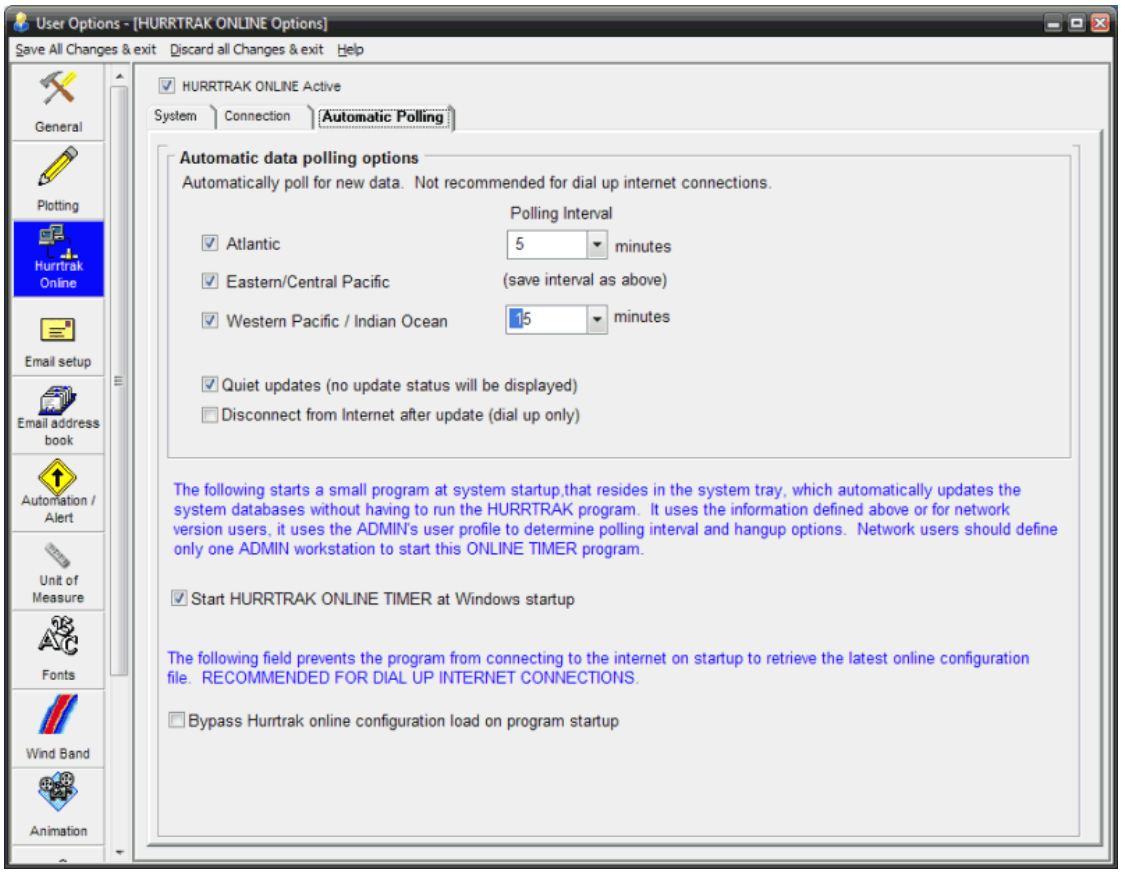
Proxy Server IP Address - *This field contains the IP address of your HTTP proxy server. If this is entered, then you do not need to enter information into the Proxy Server Name field. Check with your network administrator for this information.*

Proxy Port - This field contains the port number for your HTTP proxy server. This defaults to the standard port of 80, although your port number may be different. Check with your network administrator for this information.

Proxy USERID - you have an authenticating proxy server. This field allows you to enter the userid required for access to the proxy server. Check with your network administrator for this information

Proxy Password - If you have an authenticating proxy server. This field allows you to enter the password required for access to the proxy server. Check with your network administrator for this information.

Tunnel – Select this option if your proxy server requires SSL tunneling. Check with your network administrator for this information.


User Options - [HURRTRAK ONLINE Options]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
HURRTRAK ONLINE Active
System
Connection
Automatic Polling
Automatic data polling options
Automatically poll for new data. Not recommended for dial up internet connections.
Polling Interval
Atlantic
5
minutes
Eastern/Central Pacific
(save interval as above)
Western Pacific / Indian Ocean
5
minutes
Quiet updates (no update status will be displayed)
Disconnect from Internet after update (dial up only)
The following starts a small program at system startup,that resides in the system tray, which automatically updates the system databases without having to run the HURRTRAK program. It uses the information defined above or for network version users, it uses the ADMIN's user profile to determine polling interval and hangup options. Network users should define only one ADMIN workstation to start this ONLINE TIMER program.
Start HURRTRAK ONLINE TIMER at Windows startup
The following field prevents the program from connecting to the internet on startup to retrieve the latest online configuration file. RECOMMENDED FOR DIAL UP INTERNET CONNECTIONS.
Bypass Hurrtrak online configuration load on program startup

Automatically poll for new data - This data allows the user to select automatic polling for new data and also specify the polling internal. When this option is on, the system will attempt to retrieve new data when the system is first started and then at the specified interval. For dial-up type systems, you must define your connection in the Windows - Control Panel - Internet - Connection preferences. Global users have access to the data in the Pacific and Indian Oceans.

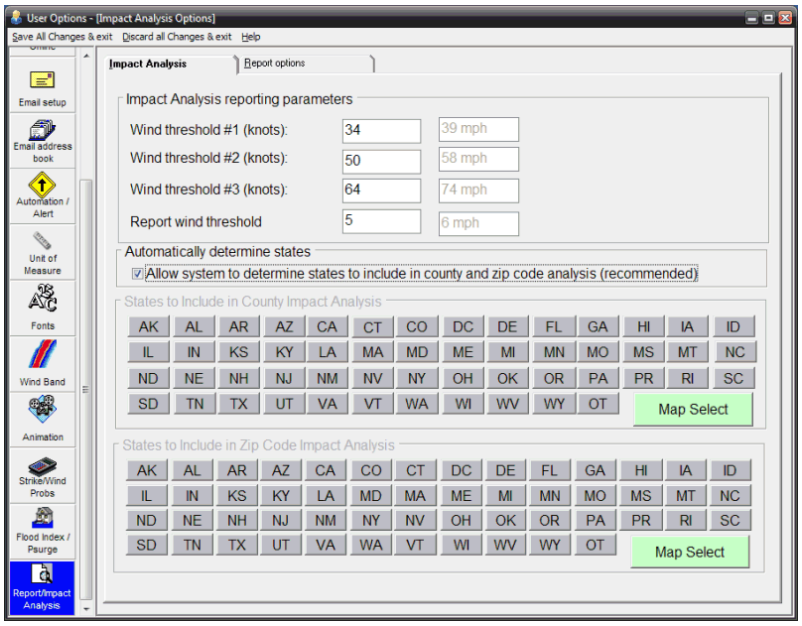
Quiet Updates - This option, when checked, will prevent the system from showing the data update progress box. "New data" messages will continue to be displayed, however.

Disconnect from Internet after update - This option will automatically disconnect your dial-up session after polling/retrieving any new data. This is only valid for Dial Up Networking Accounts. Do not set this if you have a direct connection to the Internet or an error will occur.

Start HURRTRAK ONLINE TIMER at Windows Startup - When this option is checked, a special Hurrtrak Online update program is started when your Windows system starts up. It will interact, via an Internet connection, to HURRTRAK ONLINE, keeping your hurricane database current. This allows you to keep your databases updated even though the main tracking program is not active.

Bypass Hurrtrak online configuration load on program startup - This field prevents the program from connecting to the Internet on startup to retrieve the latest online configuration file. If you have a dial up connection and only want to connect when retrieving data, you should select this option.

Impact Analysis/ Reporting Options


User Options - [Impact Analysis Options]
Save All Changes & exit
Discard all Changes & exit
Help
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
Strike/Wind Probs
Flood Index / Psurge
Report/Impact Analysis
Impact Analysis
Report options
Impact Analysis reporting parameters
Wind threshold #1 (knots):
34
39 mph
Wind threshold #2 (knots):
50
58 mph
Wind threshold #3 (knots):
64
74 mph
Report wind threshold
5
6 mph
Automatically determine states
Allow system to determine states to include in county and zip code analysis (recommended)
States to Include in County Impact Analysis
AK AL AR AZ CA CT CO DC DE FL GA HI IA ID
IL IN KS KY LA MA MD ME MI MN MO MS MT NC
ND NE NH NJ NM NV NY OH OK OR PA PR RI SC
SD TN TX UT VA VT WA WI WV WY OT
Map Select
States to Include in Zip Code Impact Analysis
AK AL AR AZ CA CO CT DC DE FL GA HI IA ID
IL IN KS KY LA MD MA ME MI MN MO MS MT NC
ND NE NH NJ NM NY NV OH OK OR PA PR RI SC
SD TN TX UT VA WA VT WI WV WY OT
Map Select

This option allows the user to specify impact analysis threshold values and certain reporting options.

Impact analysis report values:

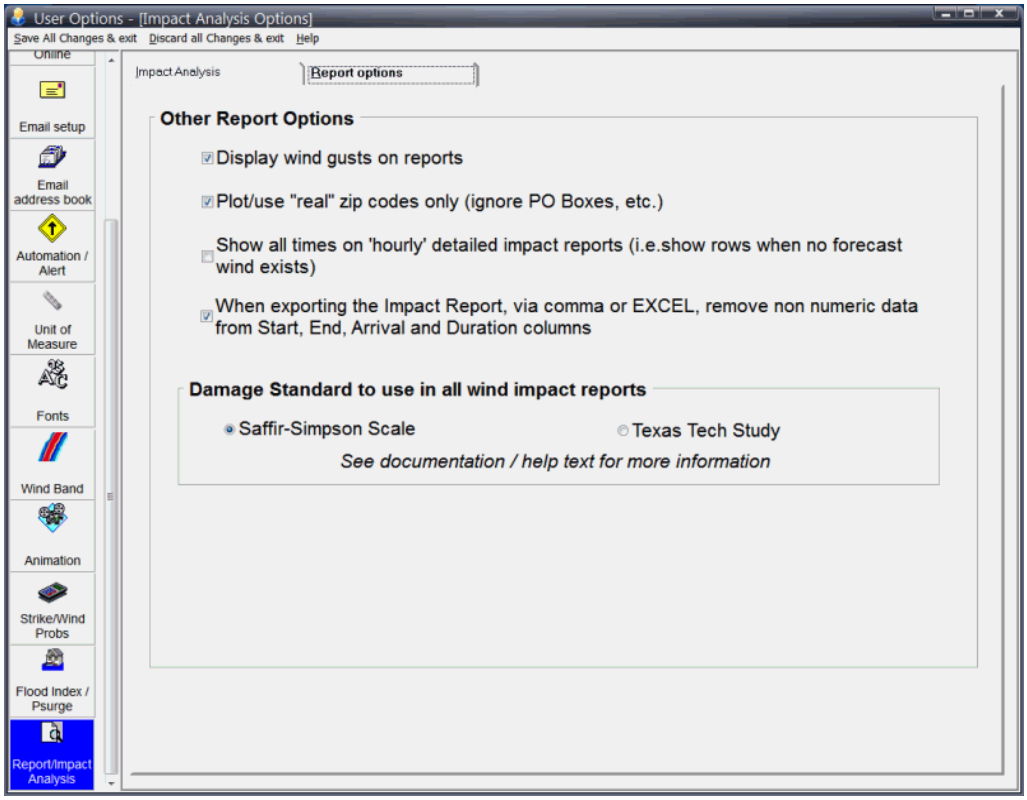
Wind threshold #1,2,3 (knots) - This option allows the user to set the wind ranges (knots) for the impact analysis report which is available after doing a county or zip code analysis report. The impact analysis report displays the total population and number of households that are forecast to be affected by certain levels of wind. See the county or zip code analysis report for more information.

Report wind threshold - This option allows the user to set the wind threshold (knots) at which they want to see summary information on the location analysis impact summary report. Locations that are not forecast to reach this level of wind will not appear on the summary report. If using the Advanced Wind Estimation capabilities of the system, it is recommended that this value be set at 5. In this way, locations that have maximum winds of less than 34 knots will still get reported. Setting this field to zero will force every location to appear in the summary wind analysis reports. It is not recommended that you do this for the county and zip code reports.

Automatically Determine States - Enabling this option allows the system to determine the affected states, rather than the user having to determine this for each storm / report. Enabling this option is highly recommended.

States to include in County Impact Analysis - Use this option to specify which states you would like to include in the County Wind Profile Analysis report. If you have interest in only a few states, then you can check only those states. This will improve the performance in generating the county wind report. You may also choose the MAP SELECT option which will allows the user to choose states graphically.

States to include in Zip Code Impact Analysis - Use this option to specify which states you would like to include in the Zip Code Wind Profile Analysis report. If you have interest in only a few states, then you can check only those states. This will improve the performance in generating the zip code wind report. You may also choose the MAP SELECT option which will allows the user to choose states graphically.


User Options - [Impact Analysis Options]
Save All Changes & exit
Discard all Changes & exit
Help
Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
Strike/Wind Probs
Flood Index / Psurge
Report/Impact Analysis
Impact Analysis
Report options
Other Report Options
Display wind gusts on reports
Plot/use "real" zip codes only (ignore PO Boxes, etc.)
Show all times on 'hourly' detailed impact reports (i.e.show rows when no forecast wind exists)
When exporting the Impact Report, via comma or EXCEL, remove non numeric data from Start, End, Arrival and Duration columns
Damage Standard to use in all wind impact reports
Saffir-Simpson Scale
Texas Tech Study
See documentation / help text for more information

Display Wind Gusts - Selecting this option allows the system to display both sustained winds and wind gusts in all location, county or zip code reports. This should be used with caution as the wind gusts estimated away from the immediate coastline will likely be overestimated. We recommend that this option only be "on" when you are using the Advanced Wind Estimation capabilities of RMPRO.

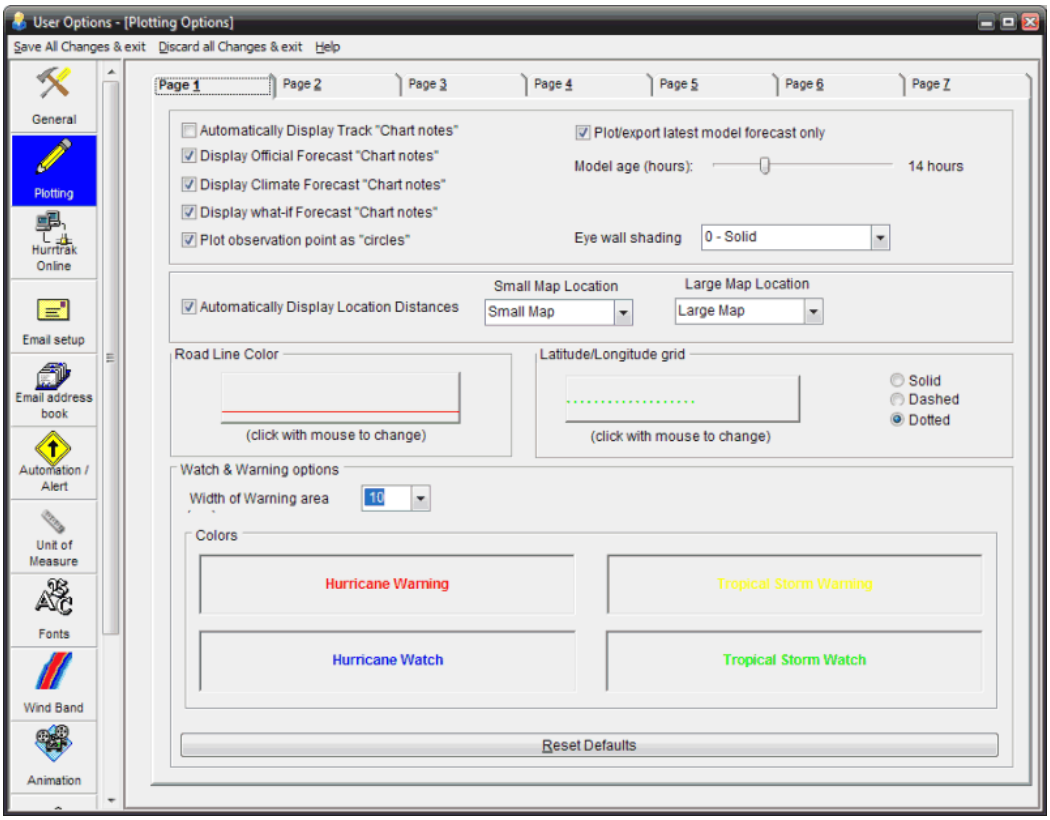
Plot/Use real zip codes only - This option determines if only populated zip codes will be reported in the zip code report. This will eliminate PO Boxes and corporate zip codes.

Show all times - This option determines if the detailed impact reports will include times when no forecast wind exists.

Export Option - This option will remove all non-numeric data from the Impact Report EXCEL export. This option has been added for users who use the data export feature as input into other programs which cannot handle alpha data in certain fields. Most users will not use this option.

Damage Standard to use in wind impact reports – This option allows the user to select which damage scale they would like to see referenced on wind impact reports. See page 336 for more information on the damage comments.

Plotting Options



This allows the user to define numerous options related to the functions available when plotting items on a tracking chart.

Display Track "Chart Notes" - This indicator determines if the storm's chart notes will automatically be displayed after the track is drawn.

Display Official Forecast "Chart Notes" - This indicator determines if the storm's official forecast chart notes will automatically be displayed after the track is drawn. The day of the week is included on smaller scale maps.

Display Climate Forecast "Chart Notes" - This indicator determines if the storm's climatological forecast chart notes will automatically be displayed after the track is drawn.

Display "what if" Forecast "Chart Notes" - This indicator determines if the storm's "what if" chart notes will automatically be displayed after the track is drawn.

Plot observation points with "circles" - This indicator determines if the storm's observation points will be designated with a small circle

Plot/export latest model forecast only - This indicator controls whether the system will plot or export more than one of the same forecast model outputs. If checked, only the latest forecast model will be shown. I.E. only the latest GFDL, not the last 2 or 3)

Model Age (hours) - This indicator controls which models will plot based on their age in hours. Any models initialized greater than this value will not be plotted. This option is utilized in both the Hurrtrak program and the RECON Plot module.

Eye wall shading pattern - This determines how the storm's eye wall will be depicted on tracking charts.

Automatically Display location distances - This option determines if location distances are automatically displayed after a storm track plot. The user can also define which location groups to use for maps smaller (small map location) and greater (large map location) than 20 degrees in width.

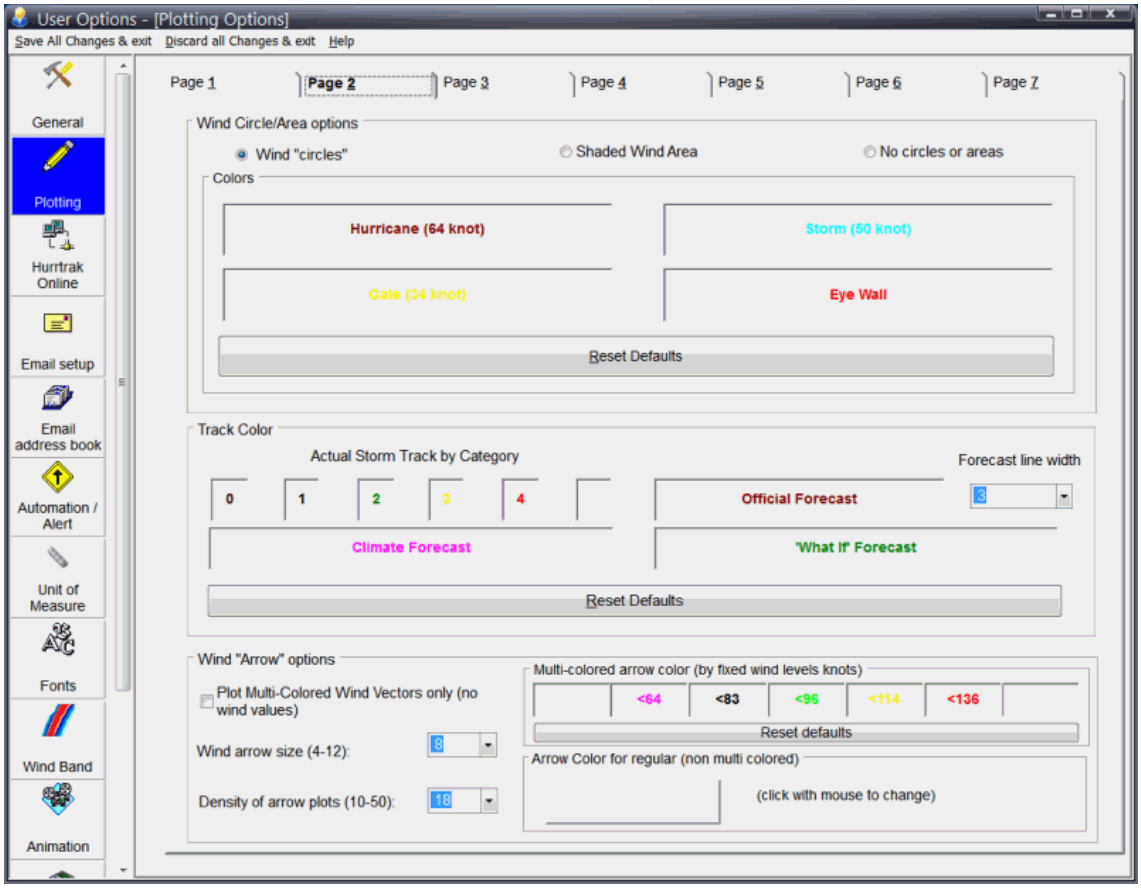
Road Line Color - This allows the user to set the color that the road lines are drawn.

Latitude / Longitude Grid - This controls the pattern and color of the latitude/longitude grid lines

Watch and Warning Options:

Width of Warning Area - This value determines how wide the watch and warning "ribbon" is drawn along the coast. It is expressed in nautical miles. The watch ribbon is 1/2 the width of this value.

Color - This option allows the user to modify the colors of the Hurricane and Tropical Storm Watch and Warning Areas.



Wind Circle/Area Options:

Circle/Shaded Area Option - This option allows the user to change/set the way that the storm wind areas are displayed. If "wind circle" is selected, then the entire storm track along with its latest position is shown, with the 34, 50 and 64 knot wind boundaries displayed. If "wind area" is selected, then only the storm's latest position is shown with the 34, 50 and 64 knot wind areas displayed as solid shaded areas. If none is selected, then only the center point is displayed.. with no wind areas depicted.

Colors - Sets the colors for the eye wall and 35, 50 and 64 knot wind “circles”.

Track Colors:

Set Color - Sets the color of the storm track by category of storm, the official forecast, the climatological forecast and what if forecast.

Reset Defaults - Resets the track colors to the shipped defaults.

Forecast Line Width – Controls the width of the forecast track (pixels).

Wind Arrows:

Plot Multi-colored wind vectors – This option allows the user to display a pattern of wind vector that represent the storm’s wind circulation. The color and size of the arrows are determined by the wind speed at each vector location. It is recommended that the arrow density is increased when using this option. See APPENDIX PP: Multi-Colored wind vector display on page 313 for more information.

Multi-colored arrow color – This option allows the user to control the multi-colored wind vector colors. The value cannot be changed and is set to the Saffir-Simpson scale.

Wind arrow size – Sets the size of the wind arrows.

Density of arrow plots - Controls the density of the arrow plots when the “display wind field” is selected.

Set Color - Sets the color of the wind arrows.

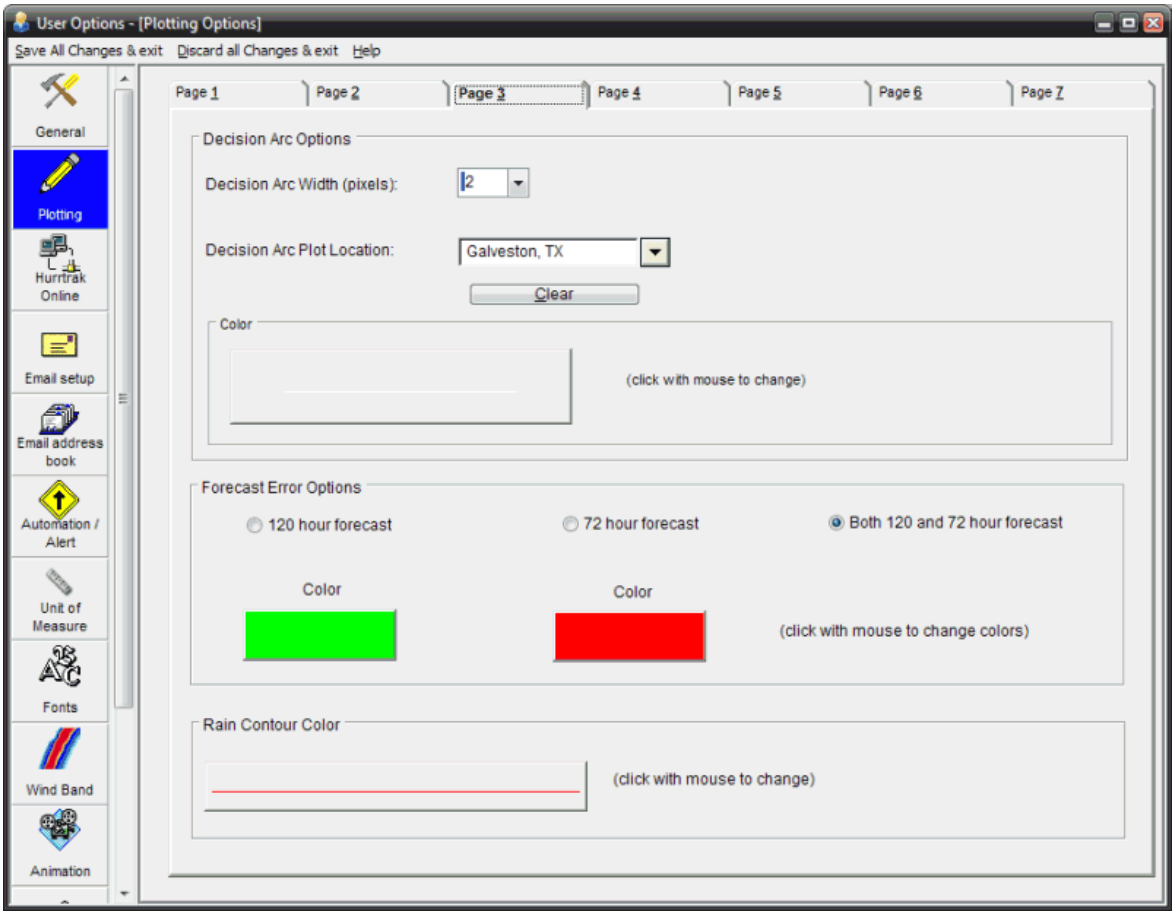


Figure 3

Decision Arc Options:

Decision Arc Width - This option allows the user to specify the width, in pixels, of the decision arc line.

Decision Arc Plot Location - This is the location that you have designated as the one to use when drawing decision arcs. You MUST have an action point defined for a location before it will appear in this list. For a complete discussion of decision arcs and decision support, see page 268.

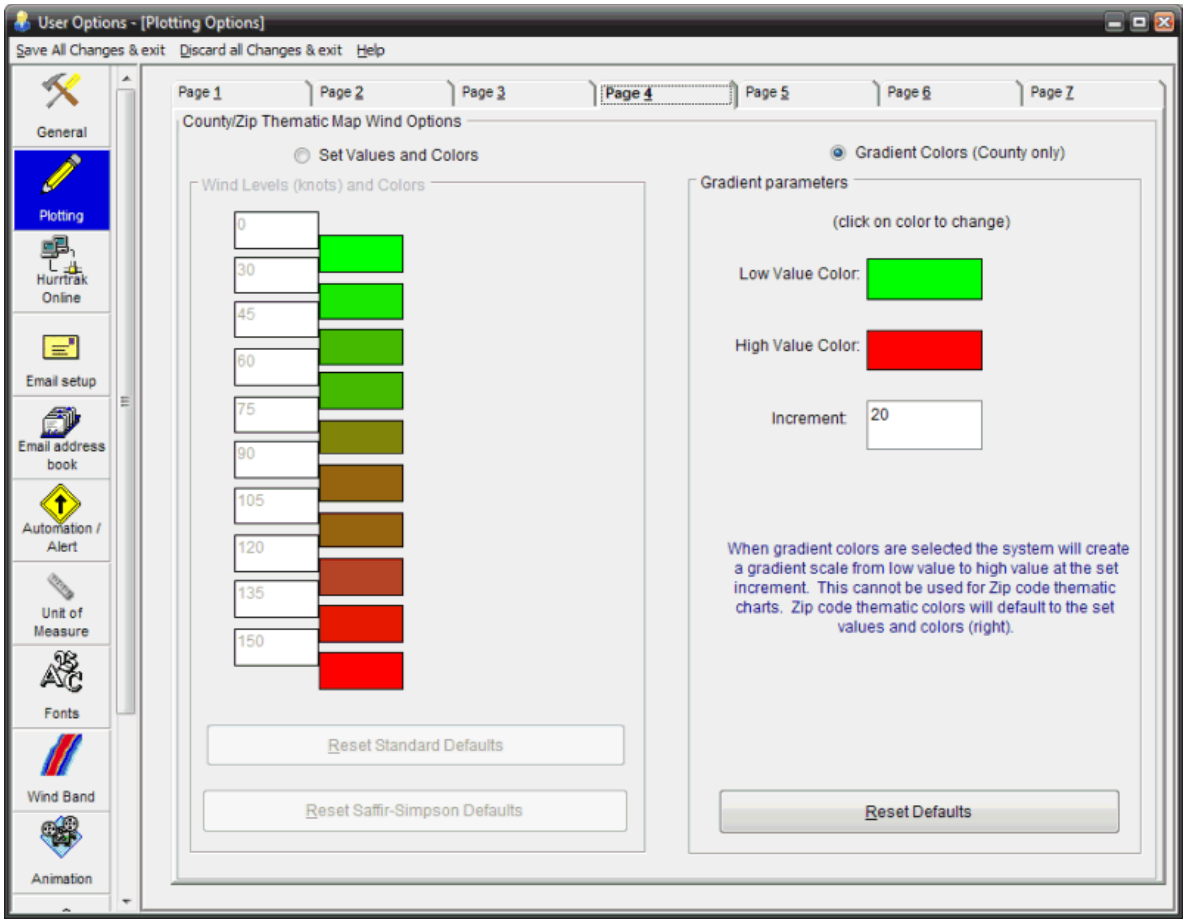
Decision Arc Color - This option allows the user to specify the color of the official forecast error.

Forecast Error Options:

Forecast Error hours – This option allows the user to specify whether they would like to show the 72 hour average forecast error and/or the 120 hour forecast error when plotting.

Forecast Error Color - This option allows the user to specify the color of the official forecast error for the 72 or 120 hour plots

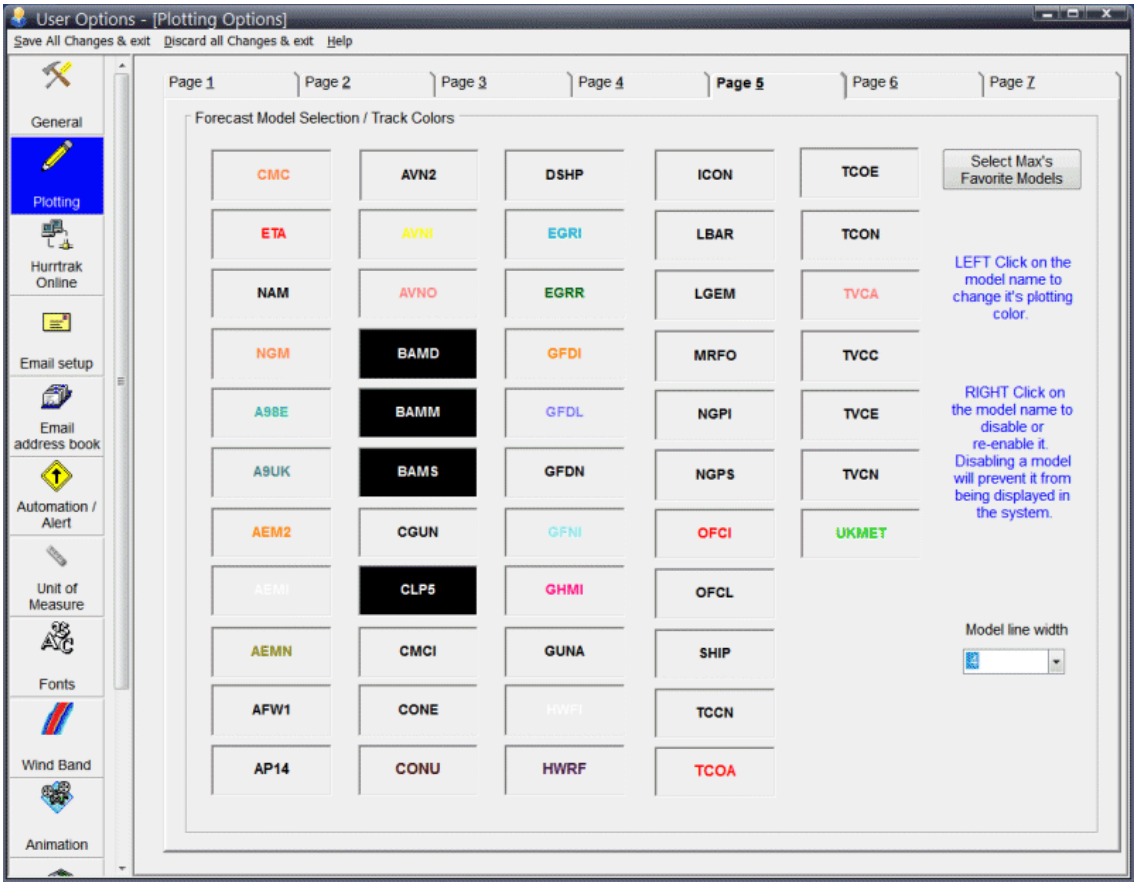
Rain Contour Color - This option allows the user to specify the color of the rain contours used for the analysis type of forecast rainfall display.



County Thematic Map Wind Options:

Set Values and Colors (left) - This option allows the user to define the specific colors used when plotting the maximum wind values on a county or zip code thematic map. This function is available from the County or Zip Wind Profile / Analysis report. The standard default wind/colors are a gradient from 0 to 150 knots and from green to red, while the Saffir-Simpson default wind/colors are from 34 to 135 knots and also from green to red. When this option is active, the defined gradient colors are ignored.

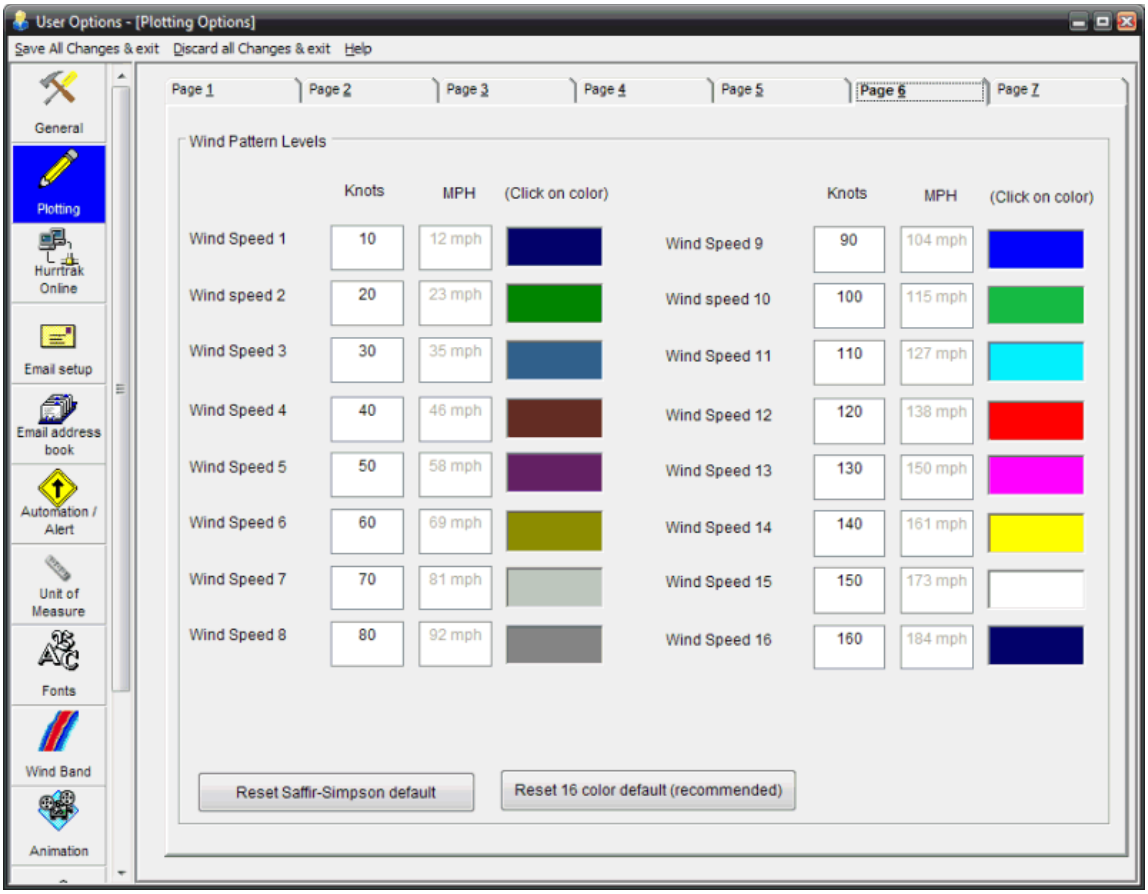
Gradient Colors (right) - This option allows the user to define a gradient of colors used when plotting the maximum wind values on a county thematic map. This function is available from the County Wind Profile / Analysis report. The user can select the low color and the high color, as well as the wind range used for each color. When this option is active, the set values and colors defined are ignored.



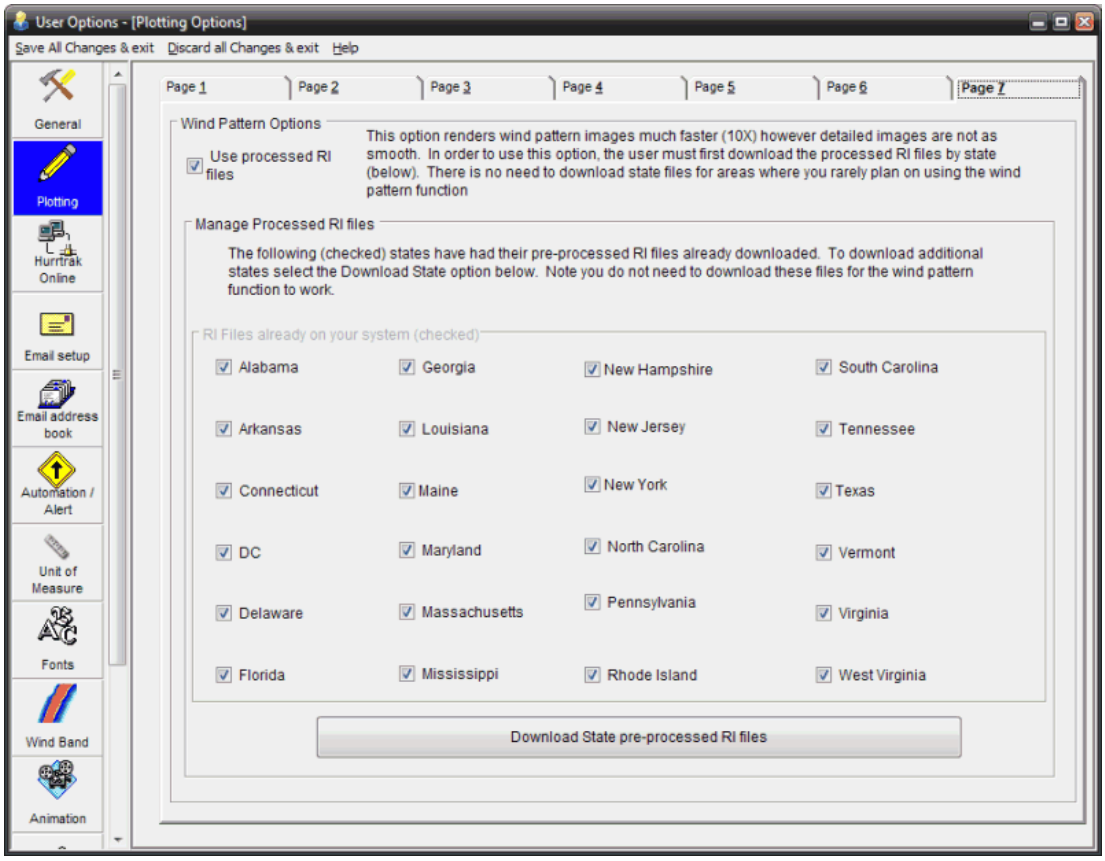
This option allows you to change the colors of the forecast model tracks as well as disabling specific forecast model. To change the color, simply left click on the model name. To disable or re-enable a model, right click on the model name. Disabled models will have a black background.

In addition, by selecting "Max's favorite models" you can select to disable all of the models except for the ones preferred by Max Mayfield.

Finally, you can control the width of the model plot by selecting the pixel width desired via the Model Line Width option. This only controls the model line width in the main tracking program.



This option allows the user to control the wind speed level and colors of the Wind Pattern Image. To change the wind values, simply enter valid values in the wind speed data fields. To change the color scheme, click on the color box. The two command buttons allow the user to easily setup levels/colors to match the Saffir-Simpson Scale or the 16 color default.



The rendering of the wind pattern display when using Advanced Wind Estimation (AWE) is very time consuming as each location's roughness index is calculated as determined by the wind direction. Run times of 20 minutes or more, depending on screen size, are not uncommon.

To rectify this problem, we have created Pre-Processed RI (roughness index) files that will allow the rendering logic to bypass this lengthy roughness index calculation. This reduces the run-times from 20 minutes down to less than 1 minute.

Unfortunately, these processed RI files are very large as all coastal states are represented by over 1 GB of data files. Rather than attempt to install or download all of these RI files (by state), the solution we have devised is to allow the user to download RI files only for states that they will typically use the Wind Pattern feature.

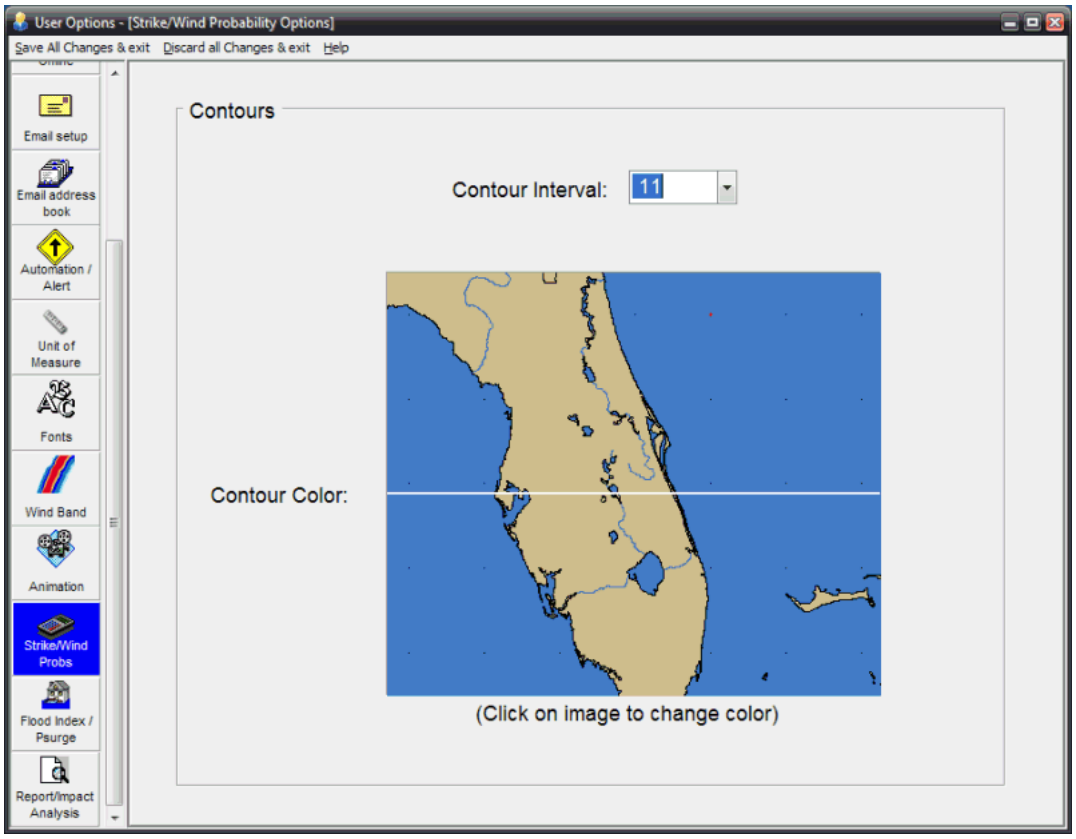
There are only two options available on this screen.

Use processed RI files - This option allows the user to turn on and off the option of using these processing RI files. The only advantage to not checking this option is that the resultant display is slightly smoother when allowing the system to calculate RI "on the fly".

Download State Pre-Processed RI files – This selection opens an Internet Explorer (or whatever your default Internet browser is) web page. You can download state files from this web page. Make sure you follow the directions exactly… particularly the message that indicates where (folder location) to save the file. Repeat this option for each state being downloaded.

The list of states, with check boxes, indicates which states have already been downloaded.

Strike/Wind Probability Options



This option allows the user to select the color and interval of the contours used in Strike and Wind Probability analysis.

Contours:

Contour Interval - The interval at which the probability contours are analyzed (I.E. a value of 20 will plot strike probability contours at 20, 40, 60 and 80 percent levels.

Set Color - This sets the color of the contours.

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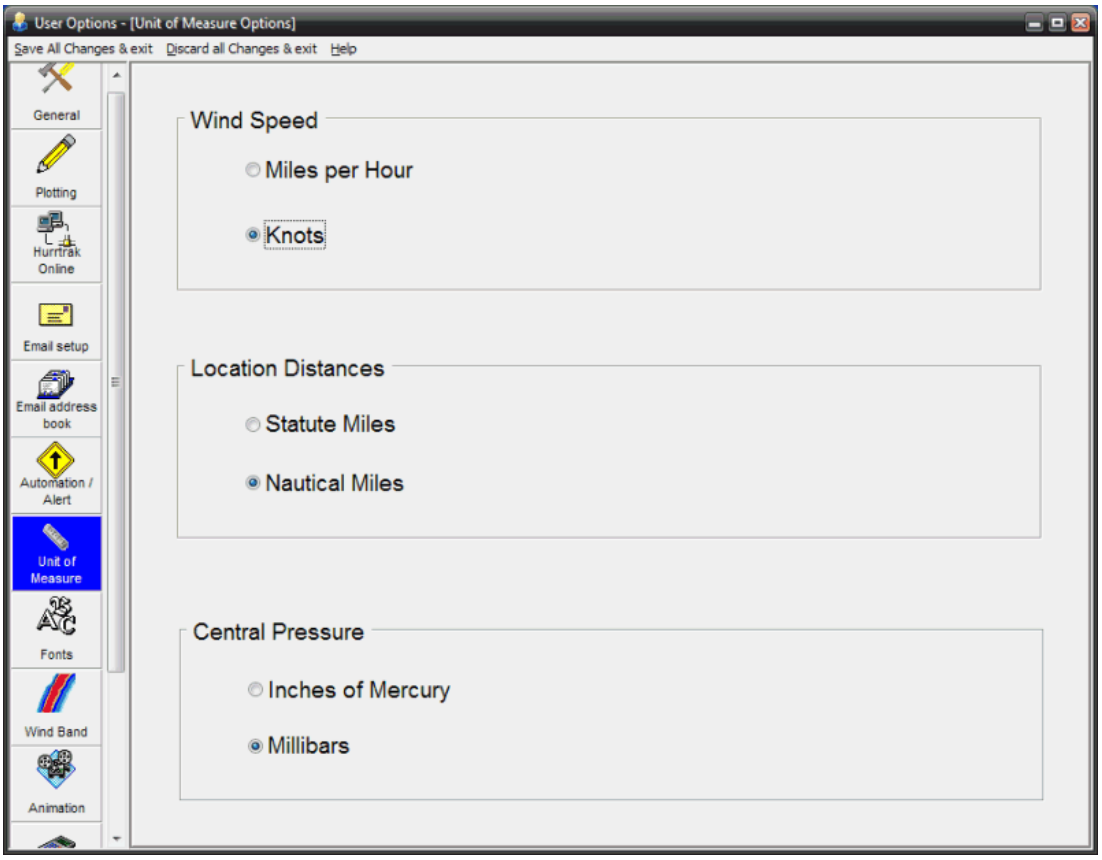
Unit of Measure Options



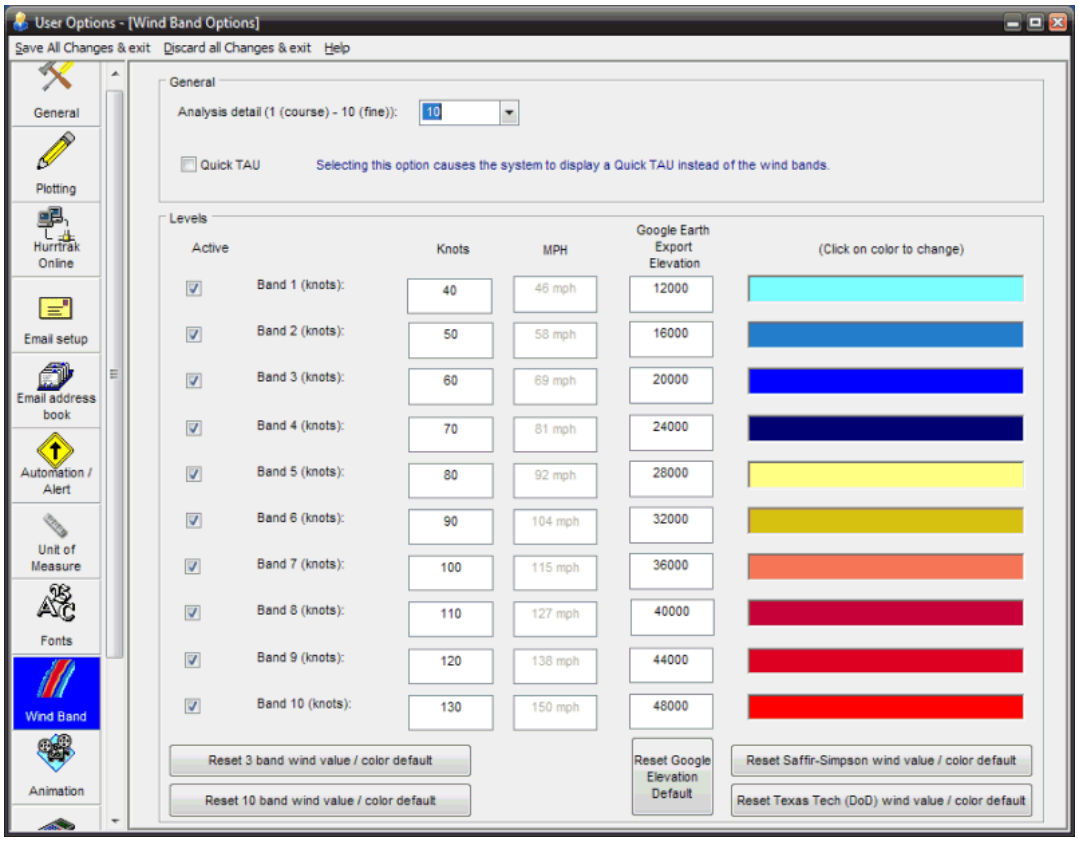
This option allows the user to specify unit of measure for the following…

Wind Speed - Sets the unit of measure for wind speed at MPH or Knots. Other than the official forecast function and certain wind preferences, the system will then display all wind information in this unit of measure.

Locations Distances: - Sets the unit of measure for location distances at either nautical miles or statute miles. Storm motion speed also uses this unit of measure.

Central Pressure - Sets the unit of measure for pressure to millibars or inches of mercury. The system will display pressure in these units. Data entry of pressure remains in MB.

Wind Band Options


User Options - [Wind Band Options]
Save All Changes & exit
Discard all Changes & exit
Help
General
Plotting
Hurrtrak Online
Email setup
Email address book
Automation / Alert
Unit of Measure
Fonts
Wind Band
Animation
General
Analysis detail (1 (course) - 10 (fine)):
10
Quick TAU
Selecting this option causes the system to display a Quick TAU instead of the wind bands.
Levels
Active
Knots
MPH
Google Earth Export Elevation
(Click on color to change)
Band 1 (knots): 40 46 mph 12000
Band 2 (knots): 50 58 mph 16000
Band 3 (knots): 60 69 mph 20000
Band 4 (knots): 70 81 mph 24000
Band 5 (knots): 80 92 mph 28000
Band 6 (knots): 90 104 mph 32000
Band 7 (knots): 100 115 mph 36000
Band 8 (knots): 110 127 mph 40000
Band 9 (knots): 120 138 mph 44000
Band 10 (knots): 130 150 mph 48000
Reset 3 band wind value / color default
Reset 10 band wind value / color default
Reset Google Elevation Default
Reset Saffir-Simpson wind value / color default
Reset Texas Tech (DoD) wind value / color default

This option controls the analysis detail and wind band colors used for the wind band analysis.

Analysis detail - This determines the level of detail to use while analyzing. A 10 value is 10 times more detailed than a value of 1 and also takes 10 times longer to analyze.

Quick TAU – This option causes the system to display a "quick TAU" plot instead of the wind bands. It indicates the observed and forecasted areas of 34, 50 and 64 knot winds.

Active – Activates / deactivates this wind band for plotting

Wind level values - Wind level #1-10 - Sets the wind value for the wind band levels.

Set Color - Sets the color of the 1-10 levels of wind band values.

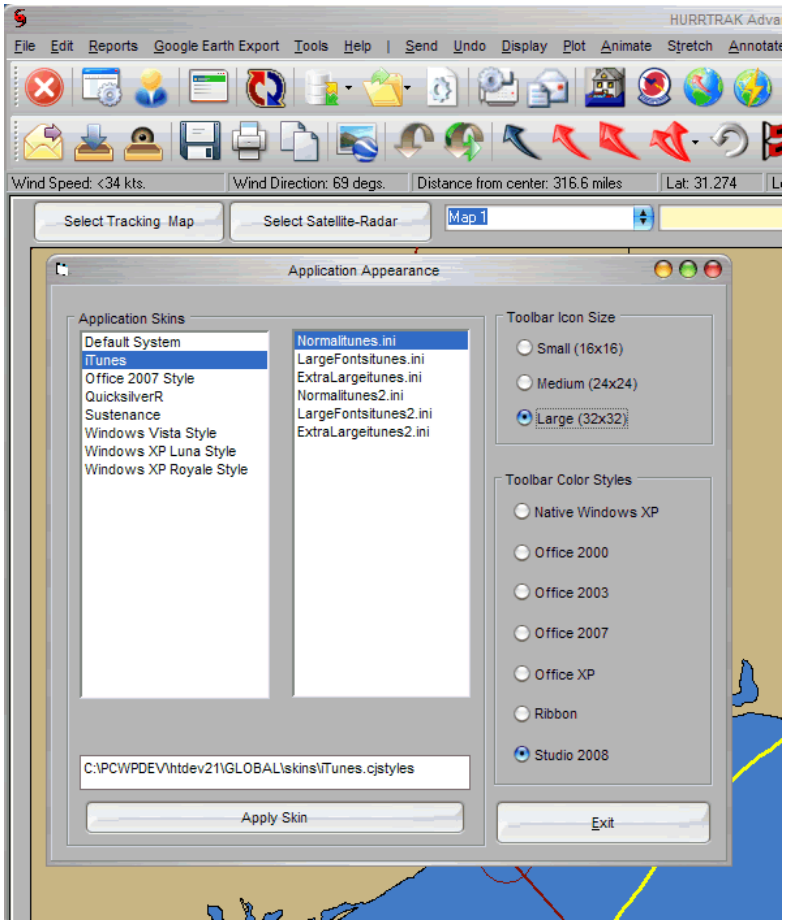
Reset 3 band value/color defaults - Resets the wind band values to the shipped 3 values.
Reset 10 band value/color defaults - Resets the wind band values to the shipped 10 values.
Reset Saffir-Simpson scale – Set the values and colors to the Saffir Simpson scale.
Reset Texas Tech scale – Set the values and colors to the Texas Tech damage scale.

.

Setup Application Appearance

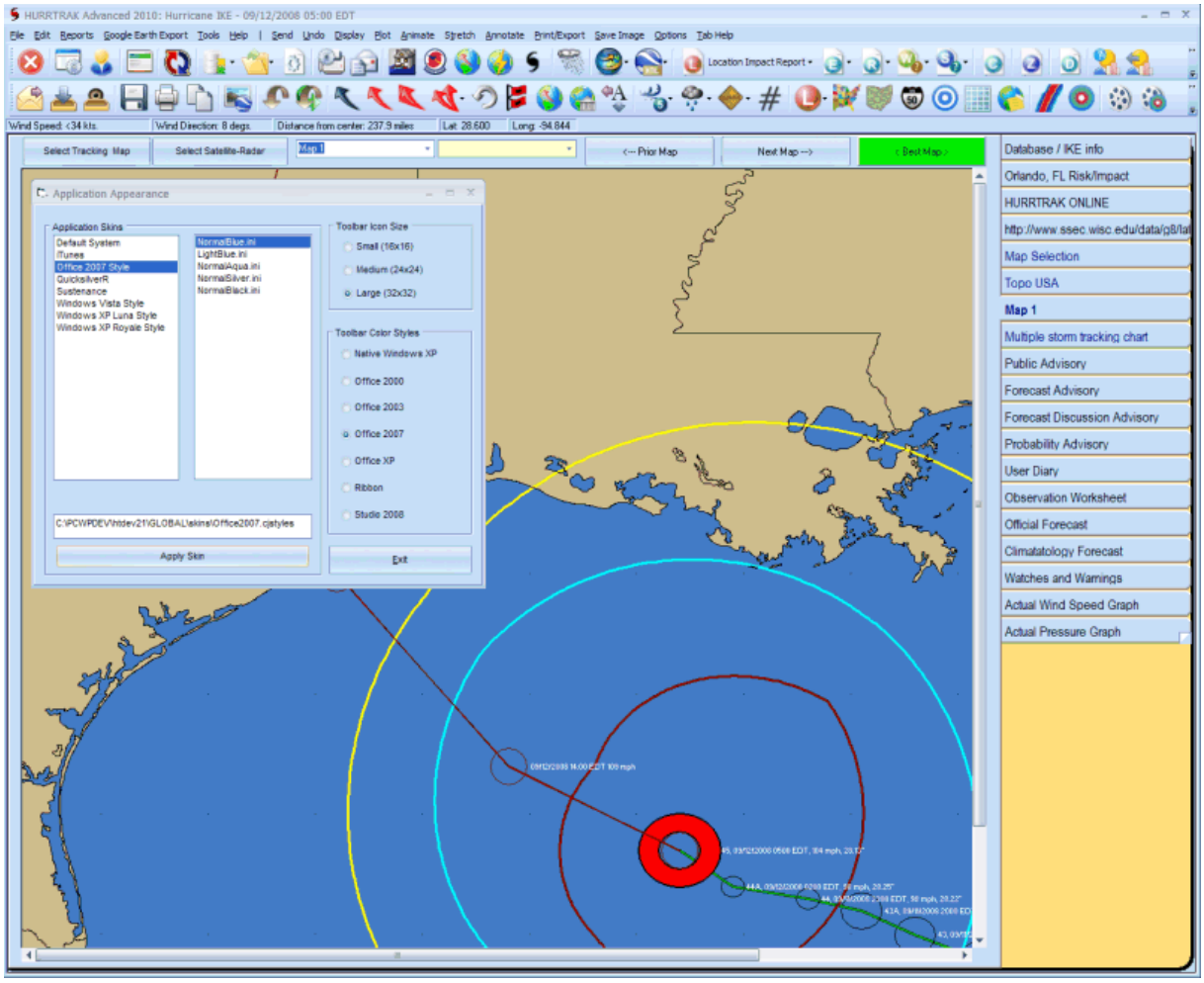
This option allows the user to change the overall appearance of the application by
- Changing the “skin” of the application
- Changing the size of the command/toolbar buttons
- Changing the colors of the command/toolbar

The following screen is presented to the user when this option is selected.



The user can select from the available skins and also select the size of the icons and the color of the toolbar. These settings are saved from one session to the next. You can use your own skins by putting them into the “SKINS” folder within the Hurrtrak installation folder.

On the following page is an example of an Office 2007 blue skin with large toolbar icons.



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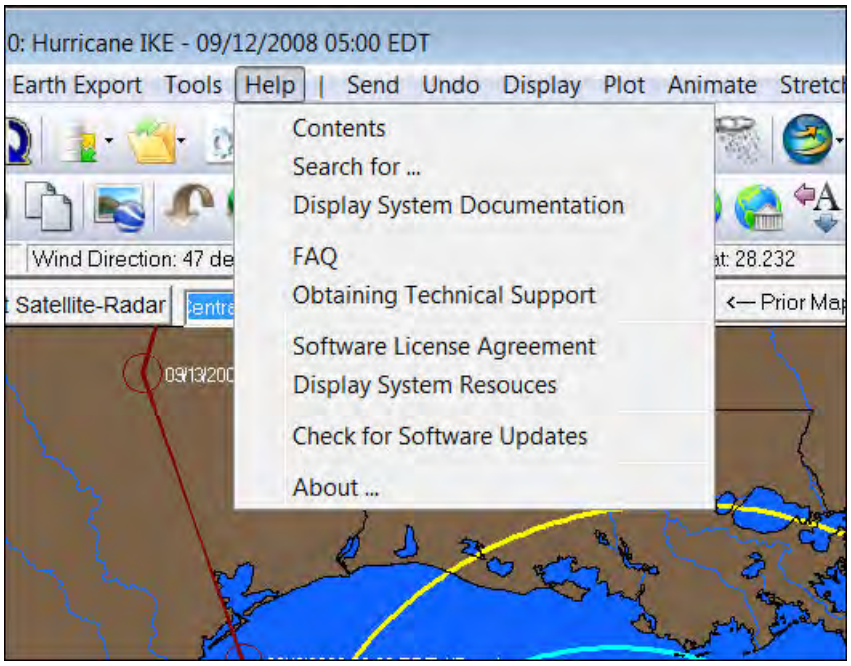
HELP OPTIONS



Contents - Displays general help.

Search for.. Displays Keyword Search.

Display System Documentation

FAQ - Displays Q&A information about the system.

Obtaining technical support - Displays information on where to find technical support.

Software License Agreement - Displays the software license agreement.

Display System Resources - Displays pop-up windows that show the values of some key system resources.

Check for Software Updates – Determines if there is a newer version of the software and will download and update your software.

About - Displays information about the version of the system you are running.

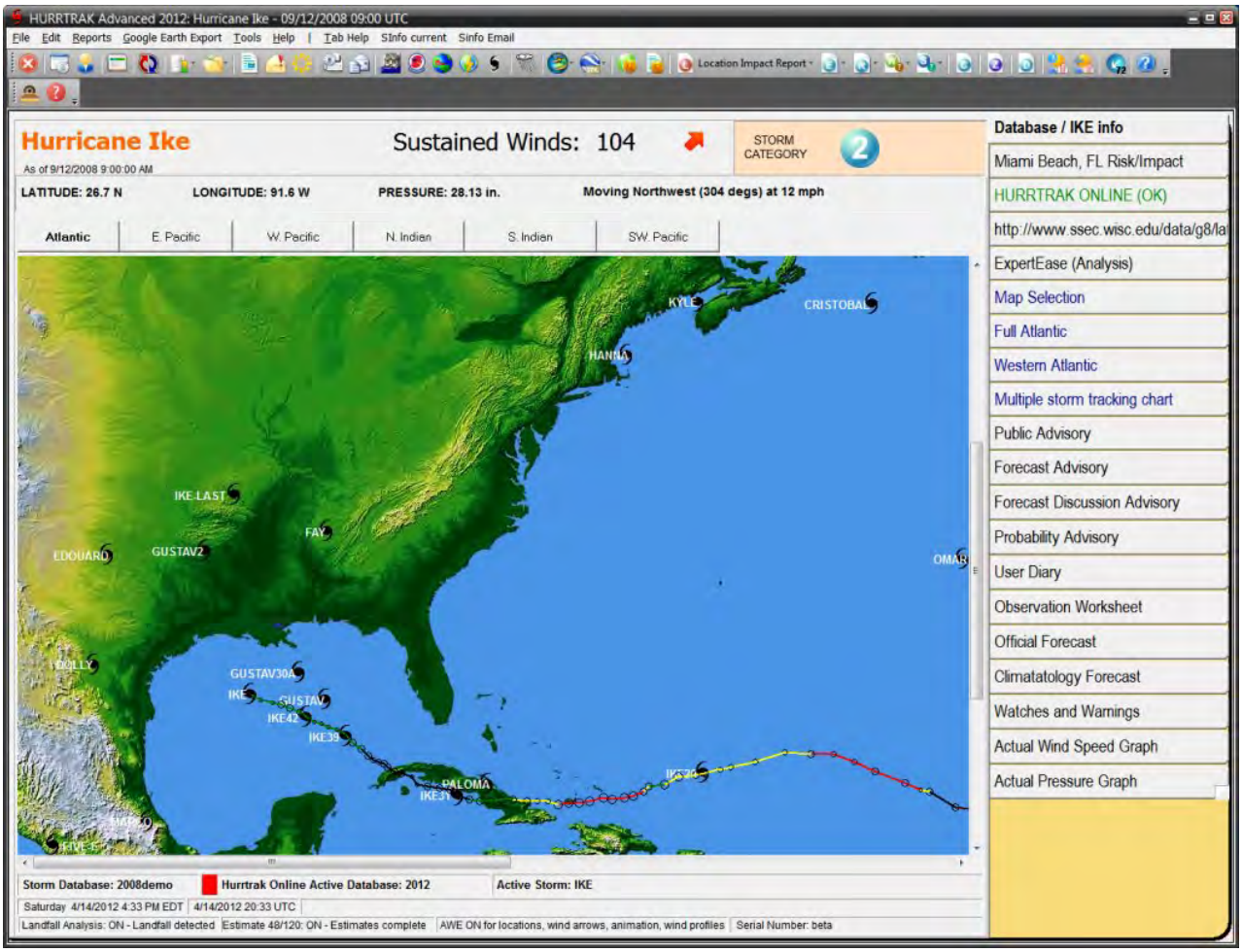
INFORMATION TABS

The HURRTRAK system information is presented using a "tab style" interface. This allows the user to easily and quickly create and view information. The tabs available on the system are:

General Information Tab
Risk/Impact Tab
HURRTRAK ONLINE Tab
Internet Tab
ExpertEase
Tracking Chart Select Tab
Variable Tracking Chart
Fixed/Favorite Tracking Chart
Wind Band Analysis
Strike/Wind Probability Analysis
Forecast Rainfall Analysis
Forecast Rainfall Thematic
Animation
Forecast Position
3D Wind Surface
Latest Tropical Weather Outlook
Public Advisory
Forecast Advisory
Forecast Discussion
Wind Probabilities
User Comments (Diary)
Observation Worksheet Table
Official Forecast Table
Climate Forecast Table
Watch and Warning Table
Wind Speed Graph
Central Pressure Graph
Location Impact Summary Report
County Impact Summary Report
Zip Code Impact Summary Report
Detailed Location/County/Zip Hourly Report
County/Zip Impact Analysis Report
Strike/Wind Probability Report
Detailed Location/County/Zip Wind Graph
Detailed Location/County/Zip Flood Index Graph
County Wind Thematic

And will be examined individually below.

General Information Tab



Description: This tab provides general system information. If a storm is loaded, it indicates the Storm Name, latest advisory date/time, the sustained winds, a wind trend indicator, the storm's category, the position of the storm, its central pressure and movement.
This tab also shows the current database, the current Active Hurrtrak Online Database, general system configuration items and a graphic which represents all of the storms in the current database. To load a storm, double click on the icon next to the storm name.

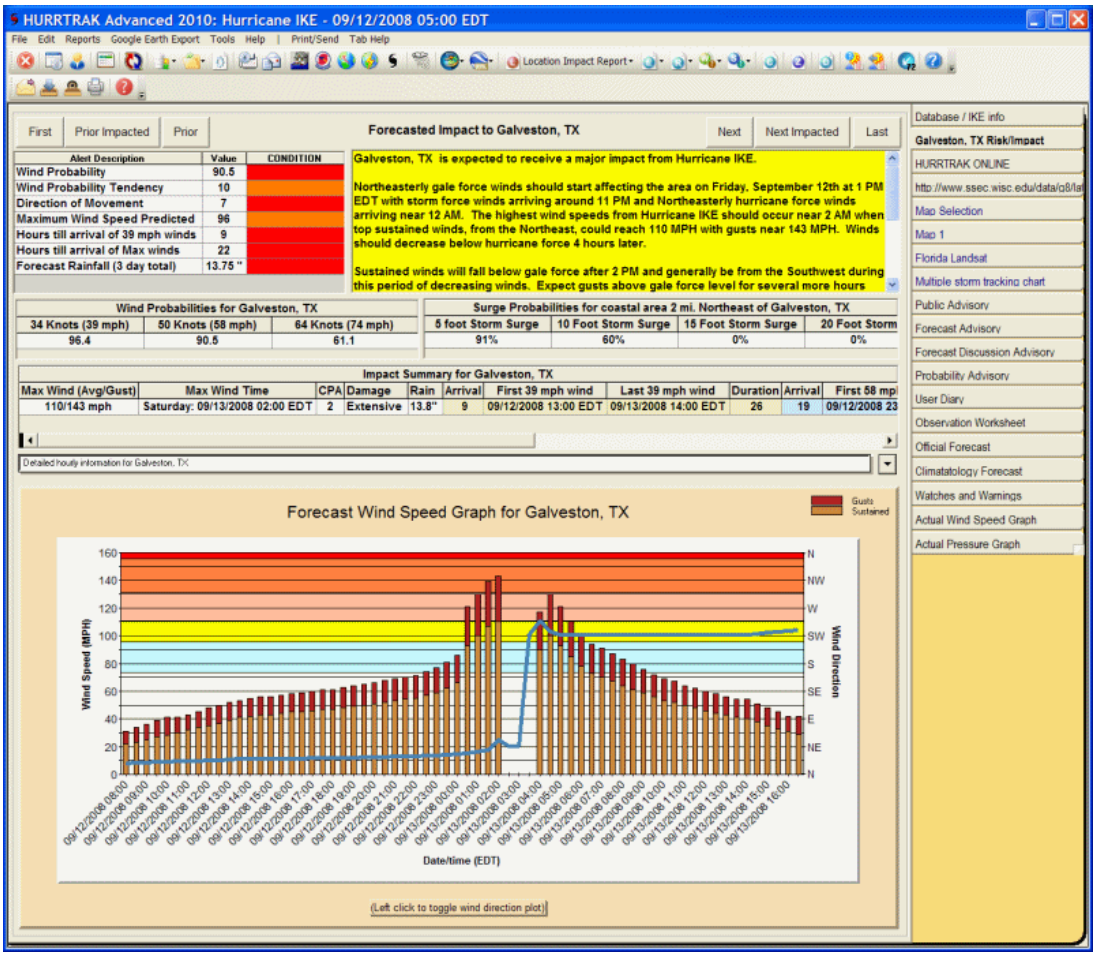
Tab Created by: N/A (always present)

Tab Closed Allowed: No

Functions Available:

- Standard system menu functions.
- Basin Select (Global versions)
- Mouse double click on a storm icon to "open" it.
- Select an observation for post storm analysis by passing over icon and then right-click / post storm analysis. Loaded storm only.
- Delete a storm by passing mouse over storm ICON and then right-click / Delete Storm.

Risk/Impact Tab


HURRTRAK Advanced 2010: Hurricane IKE - 09/12/2008 05:00 EDT
File Edit Reports Google Earth Export Tools Help | Print/Send Tab Help
First
Prior Impacted
Prior
Forecasted Impact to Galveston, TX
Next
Next Impacted
Last
Alert Description
Value
CONDITION
Wind Probability 90.5
Wind Probability Tendency 10
Direction of Movement 7
Maximum Wind Speed Predicted 96
Hours till arrival of 39 mph winds 9
Hours till arrival of Max winds 22
Forecast Rainfall (3 day total) 13.75 "
Galveston, TX is expected to receive a major impact from Hurricane IKE.
Northeasterly gale force winds should start affecting the area on Friday, September 12th at 1 PM EDT with storm force winds arriving around 11 PM and Northeasterly hurricane force winds arriving near 12 AM. The highest wind speeds from Hurricane IKE should occur near 2 AM when top sustained winds, from the Northeast, could reach 110 MPH with gusts near 143 MPH. Winds should decrease below hurricane force 4 hours later.
Sustained winds will fall below gale force after 2 PM and generally be from the Southwest during this period of decreasing winds. Expect gusts above gale force level for several more hours
Wind Probabilities for Galveston, TX
34 Knots (39 mph) 50 Knots (58 mph) 64 Knots (74 mph)
96.4 90.5 61.1
Surge Probabilities for coastal area 2 mi. Northeast of Galveston, TX
5 foot Storm Surge 10 Foot Storm Surge 15 Foot Storm Surge 20 Foot Storm
91% 60% 0% 0%
Impact Summary for Galveston, TX
Max Wind (Avg/Gust) Max Wind Time CPA Damage Rain Arrival First 39 mph wind Last 39 mph wind Duration Arrival First 58 mp
110/143 mph Saturday: 09/13/2008 02:00 EDT 2 Extensive 13.8" 9 09/12/2008 13:00 EDT 09/13/2008 14:00 EDT 26 19 09/12/2008 23
Detailed hourly information for Galveston, TX
Forecast Wind Speed Graph for Galveston, TX
Gusts
Sustained
Wind Speed (MPH)
Wind Direction
Date/time (EDT)
(Left click to toggle wind direction plot)
Database / IKE info
Galveston, TX Risk/Impact
HURRTRAK ONLINE
Map Selection
Map 1
Florida Landsat
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab provides risk/impact information for the defined base location(s). It shows the risk alert "bars", narrative impact statement, wind probabilities, surge probabilities, wind impact summary / detail and a forecast wind speed and direction graph for the displayed base location. The user can move through each of the base location via the next and prior buttons, displaying the impact information for each site.

Tab Created by: Tab is active when at least 1 base location is defined and a storm is loaded

Tab Closed Allowed: No

Functions Available:

Menu:

Standard System Menu Functions

Print/Send – Prints or sends a report for the displayed location, all impacted locations or all base locations.

Commands: (only available when more than 1 base location is defined)

First – Displays the risk/impact information for the first (alpha) location

Prior Impacted – Displays the prior (alpha) impacted location in the set of base locations

Prior – Displays the prior location in the set of base locations

Next – Display the next base location

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Next Impacted – Displays the next impacted location
Last – Displays the last location

Toolbar:

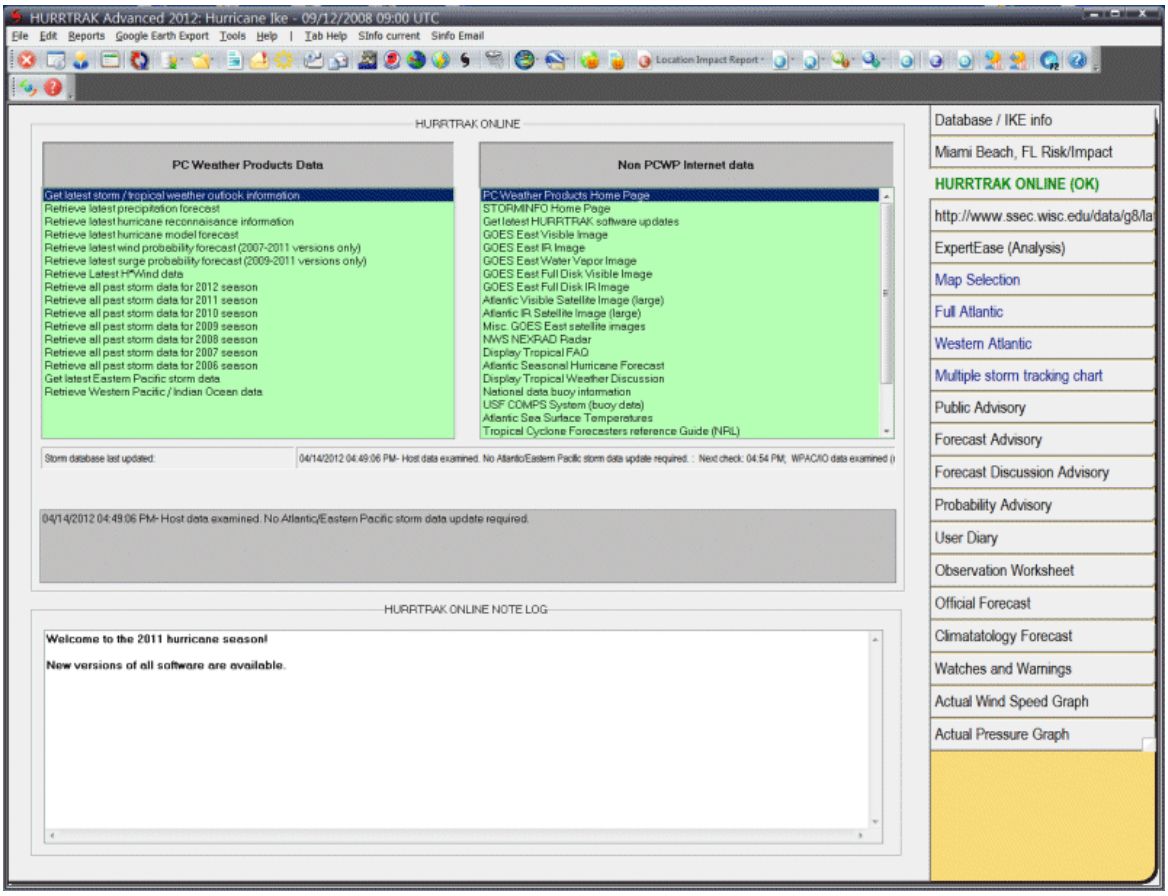
See APPENDIX T: Tool Bars on page 326 for more information.

NOTE: To have multiple base locations appear on this tab you need to add locations to the location group called “Base Location” via the System Setup option.

Miscellaneous:

- Right Clicking on the Narrative impact statement will allow the user to copy or email the narrative text.
- Selecting the drop down arrow on the row that says “Detailed hourly information for…” will display the “hourly” details for this location.
- Moving the mouse over a point on the graph will display information about that observation.
- Left –clicking on the graph will toggle the wind direction plot
- For more information on the risk alert bars, see page 323 .

HURRTRAK ONLINE Tab


HURRTRAK Advanced 2012: Hurricane Ike - 09/12/2008 09:00 UTC
File Edit Reports Google Earth Export Tools Help | Tab Help SInfo current SInfo Email
HURRTRAK ONLINE
PC Weather Products Data
Get latest storm / tropical weather outlook information
Retrieve latest precipitation forecast
Retrieve latest hurricane reconnaissance information
Retrieve latest hurricane model forecast
Retrieve latest wind probability forecast (2007-2011 versions only)
Retrieve latest surge probability forecast (2009-2011 versions only)
Retrieve Latest H*Wind data
Retrieve all past storm data for 2012 season
Retrieve all past storm data for 2011 season
Retrieve all past storm data for 2010 season
Retrieve all past storm data for 2009 season
Retrieve all past storm data for 2008 season
Retrieve all past storm data for 2007 season
Retrieve all past storm data for 2006 season
Get latest Eastern Pacific storm data
Retrieve Western Pacific / Indian Ocean data
Non PCWP Internet data
PC Weather Products Home Page
STORMINFO Home Page
Get latest HURRTRAK software updates
GOES East Visible Image
GOES East IR Image
GOES East Water Vapor Image
GOES East Full Disk Visible Image
GOES East Full Disk IR Image
Atlantic Visible Satellite Image (large)
Atlantic IR Satellite Image (large)
Misc. GOES East satellite images
NWS NEXRAD Radar
Display Tropical FAQ
Atlantic Seasonal Hurricane Forecast
Display Tropical Weather Discussion
National data buoy information
USF COMPS System (buoy data)
Atlantic Sea Surface Temperatures
Tropical Cyclone Forecasters reference Guide (NRL)
Storm database last updated:
04/14/2012 04:49:06 PM- Host data examined. No Atlantic/Eastern Pacific storm data update required.
HURRTRAK ONLINE NOTE LOG
Welcome to the 2011 hurricane season!
New versions of all software are available.
Database / IKE info
Miami Beach, FL Risk/Impact
HURRTRAK ONLINE (OK)
ExpertEase (Analysis)
Map Selection
Full Atlantic
Western Atlantic
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: While we recommend that you utilized the Hurrtrak Online Timer program to keep your databases up to date, this tab allows the user to manually retrieve information via the HURRTRAK ONLINE service. The user can select from a PCWP data list (Hurricane info) or a “Non PCWP list" which contains links to Internet sites. This tab also indicates when the storm databases were last updated and when they are scheduled to be next updated.... as well as some other informational type data.

Tab Created by: Always present, unless deselected via user preferences general options.

Tab Closed Allowed: No

Functions Available:

Menu: Standard System Menu Functions

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Other:

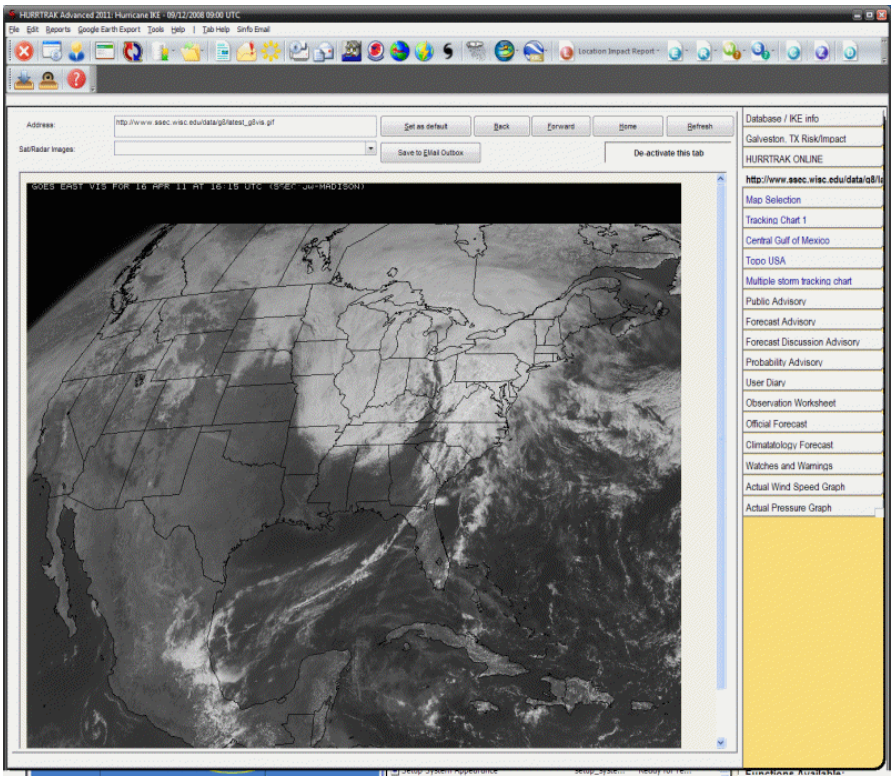
PCWP Data retrieve (dblclick left list) - Retrieves data from the PCWP Server.

Non PCWP Data retrieve (dblclick right list) - Opens your browser and goes to Internet link.

Retry configuration - If Internet link fails, this allows the user to manually force the system to retry to retrieve the Hurrtrak Online Configuration Data.

TIPS: Be sure to setup your HURRTRAK online options before downloading.

INTERNET Tab



Description: This tab allows the user to display an Internet web page. Typical uses include a link to your favorite satellite image, hurricane site, etc. This is not meant to be a full service web browser, but rather a simple way to show Internet information within the HURRTRAK system without having to start a separate browser. The sat images dropdown lists primarily satellite image Internet links which are provided via the HURRTRAK Online service.

Tab Created by: Always present unless deselected via general options.

Tab Closed Allowed: No

Functions Available:

Menu: Standard System Menu Functions

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Other Commands:

Set as default - Sets the current URL displayed as the default location shown when the system is started. This does not affect your regular browsers home location.

Back – Goes back 1 page

Forward – Goes forward 1 page

Home - goes to default home page.

Refresh – refreshes current page. Page will update automatically every 15 minutes.

Save to Email Outbox – Adds image to the Email outbox

Active option - this option allows the user to turn off the web browser feature.

Tip: Copy and paste you favorite web address from your web browser into the address field. Check out the Satellite Image dropdown list for a list of our favorite satellite images.

ExpertEase Tab

Description: This tab contains the latest video discussion from one of the PC Weather Products meteorologist. It is typically updated daily by noon EDT and contains information about conditions in the tropics and focuses on any active tropical cyclones. This feature is available to all Hurrtrak users who have the latest version of the software and have an active Hurrtrak Online subscription.

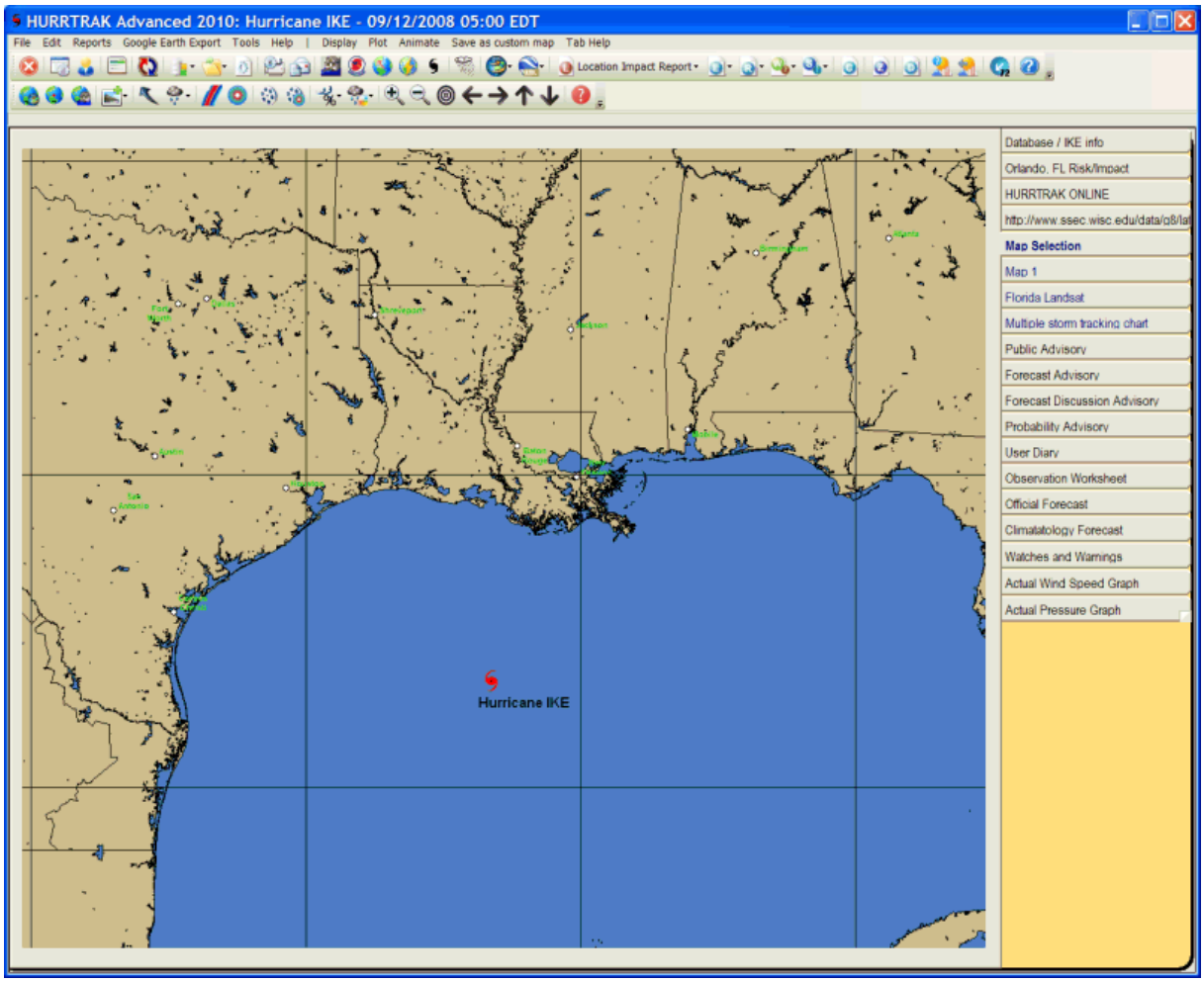
Tab Created by: Always present unless deselected via general user options.

Tab Closed Allowed: No

Functions Available:
Reload Video - Restarts the video from the start

Special Considerations: Adobe FLASH Player must be installed on your system before the video will play correctly. It is best if you install Adobe Flash player via an Internet Explorer session and not via the Hurrtrak Interface. You can download and install Adobe Flash from http://get.adobe.com/flashplayer/ .

Map Selection Tab



Description: This tab displays a detailed map of the systems tracking area. It is used in all pan and zoom mapping options. In additional, you can manipulate this map and then select plotting functions you would like to plot on this map.

Tab Created by: Always present when storm loaded.

Tab Closed Allowed: No

Functions Available:

Menu: Standard System Menu Functions

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Display:

Overlay Control Center – This is an advanced function which allows the user to display various GIS overlays on a tracking map. This is described in much more detail on page 343.

Strike Probabilities- Plots the forecast strike probabilities using the current map on a separate tab.

Wind Probabilities- Plots the forecast wind probabilities using the current map on a separate tab.

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Forecast Rainfall Analysis - Plot the forecast rainfall analysis using the current map on a separate tab.
Forecast Rainfall Thematic - Plots the forecast rainfall by showing a color-coded county thematic map. This appears in a separate tab.
Wind Pattern – Plots the wind pattern graphic using the current map and current storm wind field onto a separate tracking type tab. See page 321 for more information on the Wind Pattern image.
Wind Bands (Forecast / Actual) - Plots the forecast or actual wind band analysis using the current map on a separate tab.
SLOSH / Storm Surge for this area – Opens up the SLOSH display program and loads data for the area selected on the map. You must be at an appropriate zoom level to select this option.

Plot:

EZ Map - Automatically creates a tracking map with several plotting options as defined in the General User Options. See page 301 for more information on the EZ Map function.
Tracking Chart with plot - Plots the storm's current track and position, with wind areas depicted, using the current map on a separate tracking chart tab.
Tracking Chart with no plot - Displays the current map with only a hurricane symbol depicting the storm's latest position. This is shown on a separate tab.
Forecast Position - Using the current map, this option displays a storm's forecast position on a separate tracking chart tab.

Animate

Standard - Using the current map, this option animates the storm's actual and/or forecast track depicting the standard 34, 50 and 64 knot wind areas. The animation appears on a separate tab.
Wind Pattern – This option animates the storm's actual and/or forecast track using the wind pattern method. This takes considerably more time for the animation sequence to be created and should be used with some caution.

Save as custom map - This option allows the user to save the current map image as a custom "favorite" tracking map. **This is the recommended method for creating a custom map**, instead of using the custom map maker function.

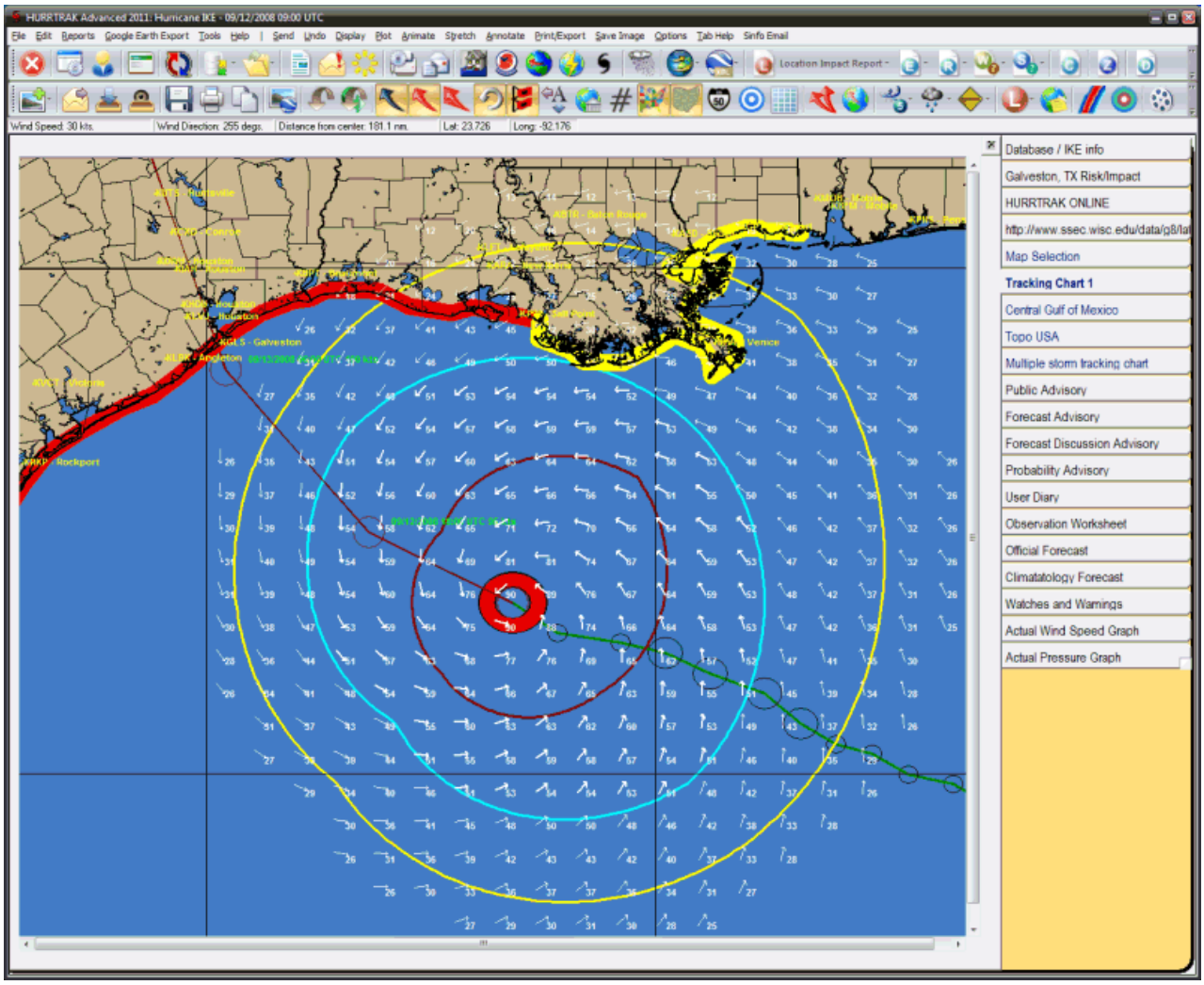
Tips:

Zoom in by doing a mouse <left click> and drag, outlining the desired area.
A mouse <right click> will present several map positioning options.
A mouse <left click> and drag, while holding the shift key, will display a distance vector.
A <Ctrl> <left click> and drag will reposition the map area.

Misc:

The image on this tab is automatically used when using the Pan and Zoom options from a tracking chart.

“Variable Tracking Chart”/Map Selection Tab



Description: This tab displays the map selected from the map selection tab or when a map is re-plotted due to pan and zoom. Many storm tracking and analysis functions are available from here. Up to three of the variable tracking chart tabs are available. These maps are dynamic and are not part of the system's permanent (fixed/favorite) tracking chart selection.

Tab Created by: Selecting a tracking option from the Map Selection tab.

Tab Close Allowed: Yes

Functions Available:

Menu: Standard System Menu Functions

Send - Sends current tab’s image as graphic or pdf via email image as shown on page 156.

Undo - Removes the last change or all changes to the tracking chart.

Display - For a complete list of display options see page 157.

Plot - For a complete list of Plot options see page 159.

Animate - Animates the storm’s actual and/or forecast motion on a separate tab. The user can select to plot a standard or wind pattern animation on the same chart or one with a refreshed un-plotted image.

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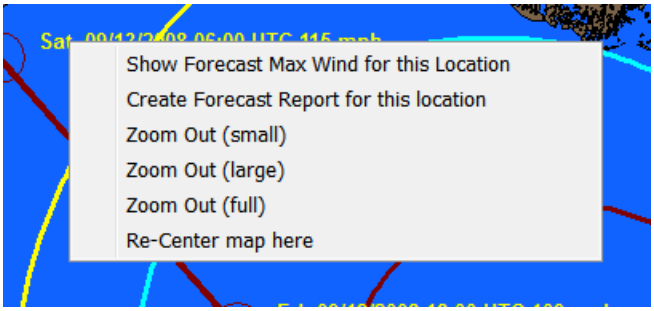
Stretch - Fills the entire screen with the current tab's image. No functions can be performed while in stretch mode.
Annotate – Allows the user to place text on the current image.
Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.
Save Image – Saves the image to the clipboard or file (color or B&W), pdf or adds to Email Outbox.
Options – Allows the user to show mousepointer data and turn the status bar on/off.

Toolbars: See APPENDIX T: Tool Bars on page 326 for more information.

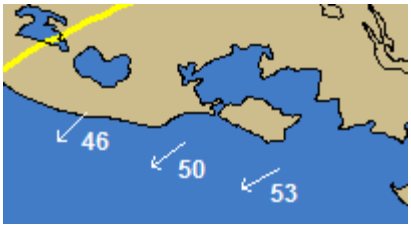
Miscellaneous:

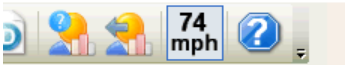
The user can zoom in by rubber-banding an area on the screen. Other pan and zoom options are available by **right clicking** anywhere on the map image.


Show Forecast Max Wind for this Location
Create Forecast Report for this location
Zoom Out (small)
Zoom Out (large)
Zoom Out (full)
Re-Center map here

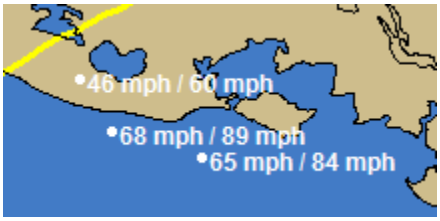
Left Clicking on a tracking map will display either the current wind vector (arrow) for the mouse position or the forecast wind speed for that location. This is controlled by toggling a toolbar button which is located on the primary toolbar.

- In this mode, a left click will display the wind speed/direction at that point, at the current time.

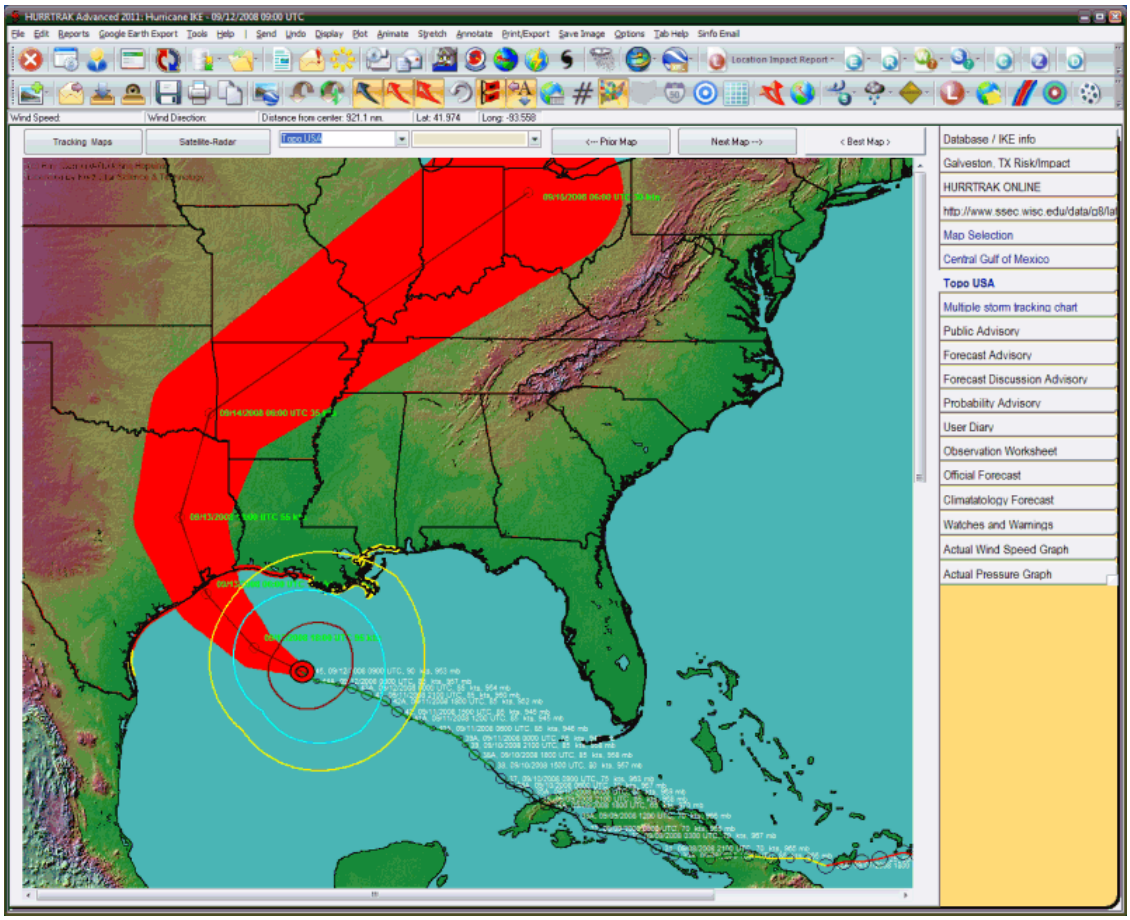




- In this mode, a left click will display the forecast wind speeds (sustained and gusts) at the point.



Fixed/Favorite Tracking Chart Tab



Description: This tab displays one of the many fixed area system tracking charts. These include any custom maps created by the user. There are 3 "favorite" tracking chart tabs available to the system.. one of which is a "multiple storm" tracking chart. Many storm tracking and analysis functions are available from here, including the ability to plot a track on a satellite or radar image.

Tab Created by: Always there, when storm is loaded, unless specified otherwise by User General Options.

Tab Close Allowed: No

Functions Available:

Menu: Standard System Menu Functions

Send - Sends current tab's image as graphic or pdf via email image as shown on page 156.

Undo - Removes the last change or all changes to the tracking chart.

Display - For a complete list of display options see page 157.

Plot - For a complete list of Plot options see page 159.

Animate - Animates the storm's actual and/or forecast motion on a separate tab.

Stretch - Fills the entire screen with the current tab's image. No functions can be performed while in stretch mode.

Annotate – Allows the user to place text on the current image.

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Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.

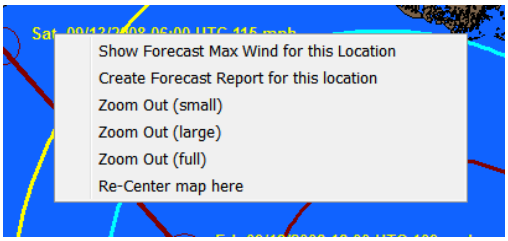
Save Image – Saves the image to the clipboard or file (color or B&W).

Options – Allows the user to show mousepointer data and turn the status bar on/off.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

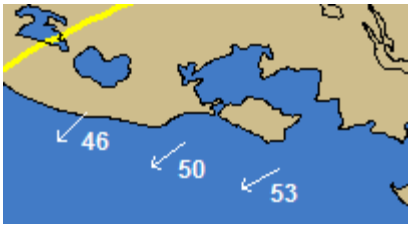
Miscellaneous:

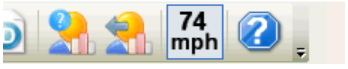
The user can zoom in by rubber-banding an area on the screen. Other pan and zoom options are available by **right clicking** anywhere on the map image.


Show Forecast Max Wind for this Location
Create Forecast Report for this location
Zoom Out (small)
Zoom Out (large)
Zoom Out (full)
Re-Center map here

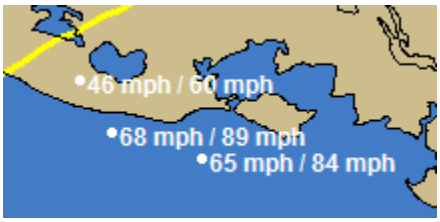
Left Clicking on a tracking map will display either the current wind vector (arrow) for the mouse position or the forecast wind speed for that location. This is controlled by toggling a toolbar button which is located on the primary toolbar.

- In this mode, a left click will display the wind speed/direction at that point, at the current time.





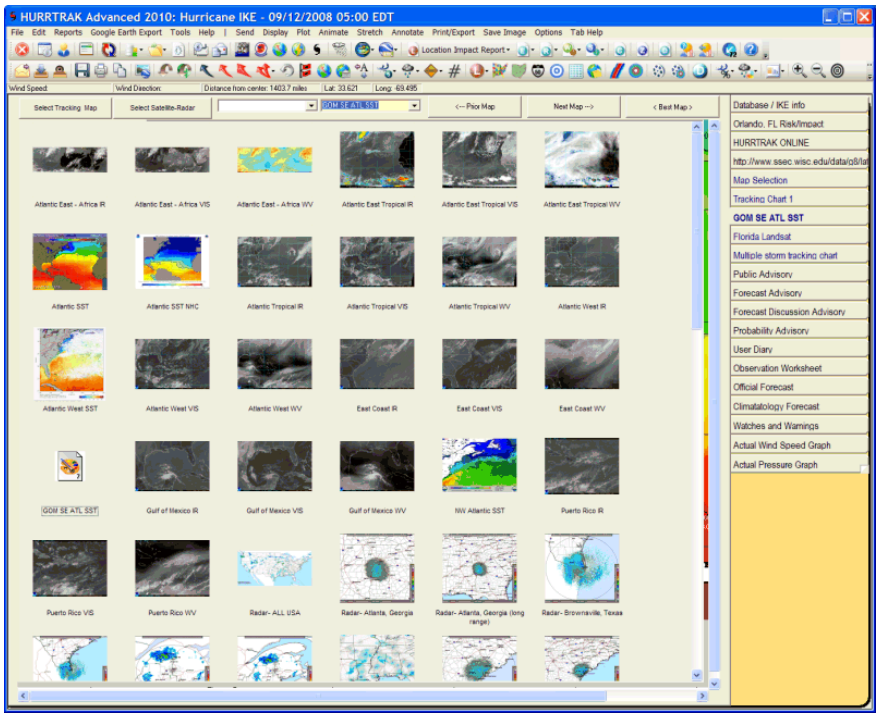
- In this mode, a left click will display the forecast wind speeds (sustained and gusts) at the point.



Other:

If you **right click anywhere** on the tracking map near the forecast path, you have the option to create an impact report for that location.

Tracking map option / List - This command will display the thumbnail sized images of all of the fixed tracking chart for your selection (dbl click). You can also select the chart from the dropdown list. See example below.
Satellite/Radar option / List – This command will display the thumbnail sized images of all of the satellite, sea surface temperature (SST) and Radar images that are available for overlaying storm tracks on top of. See example below…



You can also select the image from the dropdown list. The selection of images is maintained by PC Weather Products and requires a HURRTRAK Online subscription to make active. Upon selection, the image is loaded from a 3rd party Internet source and then storm tracks may be plotted on top of it. Note.. Any plots that floods an area with color.. such as a forecast track error or wind band analysis will overlay the image behind it. It is suggested that you do not use these type functions.
.
Next Map - This option will display the next (sequential) fixed area map.
Prior Map - This option will display the prior fixed area map.
Best Map - This option selects the smallest scale map that has the storm's latest position on it.

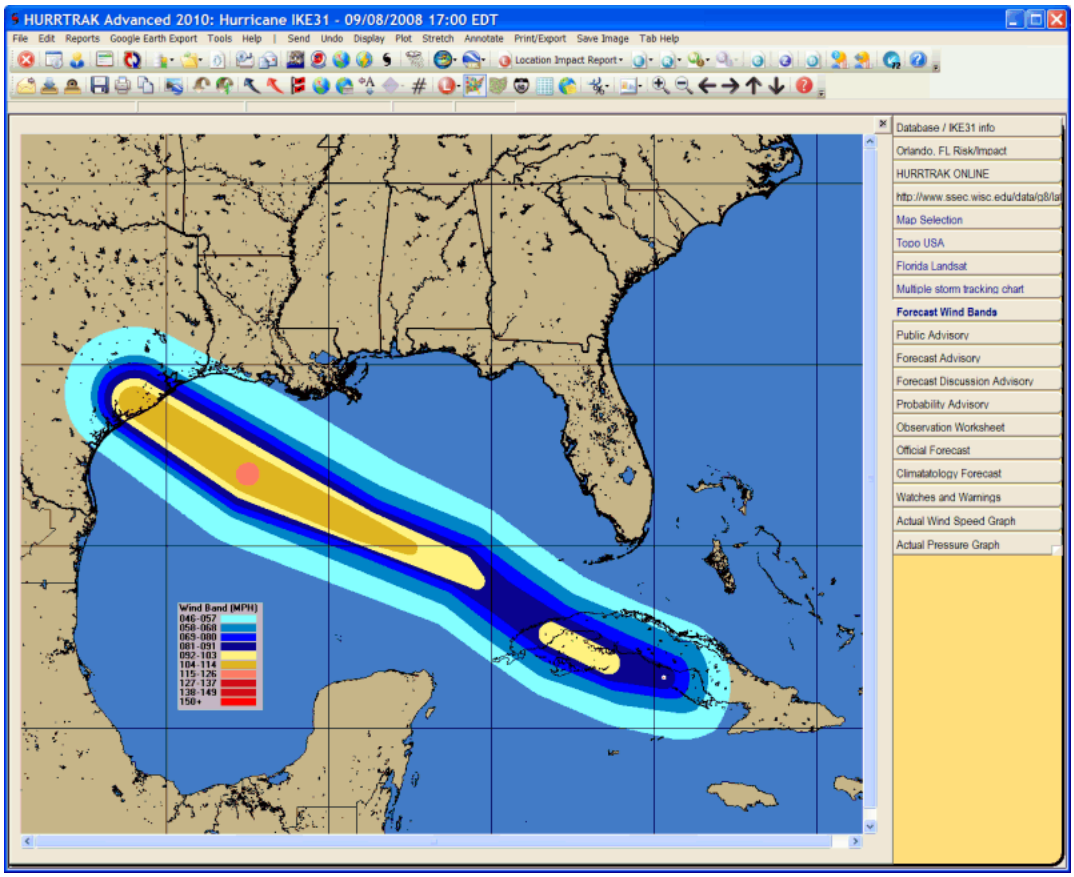
Tips:

Using the Next or Prior Map command buttons after being on the BEST map, will display the first map in the sequence (full area map).
The map dropdown list is the fastest way to get to a specific desired tracking chart.
You can specify how many favorite tracking charts you would like to have available in the user general options.
The multiple storm tracking chart tab is special in that it is NOT refreshed when a new storm or database is loaded. This allows the user to plot more than one storm track on it.
The satellite/Radar image dropdown list is maintained via HURRTRAK Online and may change during the hurricane season. The images are downloaded from 3rd party Internet sites which are generally very reliable.. but occasionally they may not be available.

The satellite and radar thumbnails are set to update via Hurrtrak Online every 3 hours. This can be controlled via the settings in general options. The age of the thumbnail has no effect on the image downloaded and displayed... which is always the latest available.

You cannot add your favorite satellite image to the list of tracking chart satellite images. If you have a good source for satellite images and the images are in a Mercator map projection, please contact us.

Wind Band Analysis Tab



Description: This tab displays the actual and/or forecast wind band analysis information for the current loaded storm. Additional storm tracking and analysis functions are available from here.

Tab Created by: Map Select Tab, Variable Track Chart Tab, Favorite Tracking Chart Tab

Tab Close Allowed: Yes

Functions Available:

Menu: Standard System Menu Functions

Send - Sends current tab's image as graphic or pdf via email image as shown on page 156.

Undo - Removes the last change or all changes to the tracking chart.

Display - For a complete list of display options see page 160.

Plot - For a complete list of Plot options see page 159.

Stretch - Fills the entire screen with the current tab's image. No functions can be performed while in stretch mode.

Annotate – Allows the user to place text on the current image.

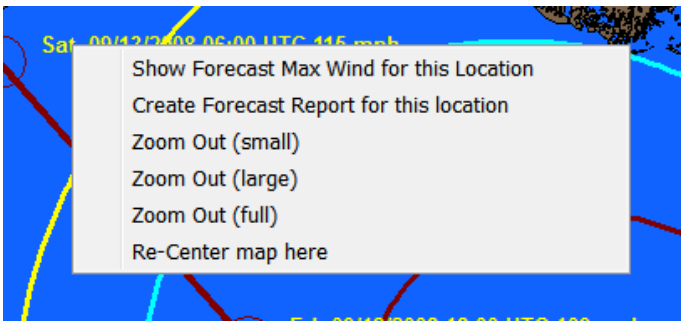
Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.

Save Image – Saves the image to the clipboard or file (color or B&W), pdf or add to Email Outbox.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

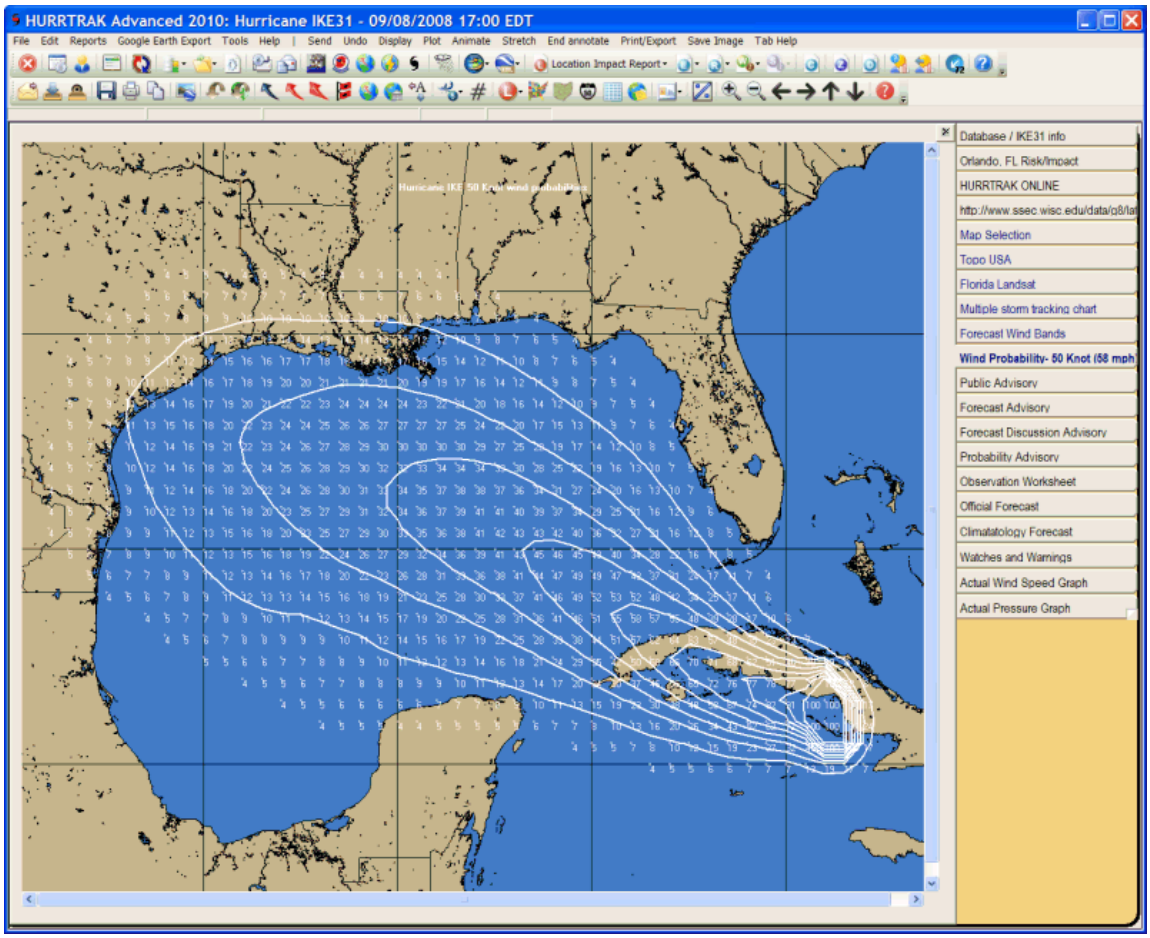
Miscellaneous:

The user can zoom in by rubber-banding an area on the screen. Other pan and zoom options are available by right clicking anywhere on the map image.


Show Forecast Max Wind for this Location
Create Forecast Report for this location
Zoom Out (small)
Zoom Out (large)
Zoom Out (full)
Re-Center map here

Tips: You can specify the wind band wind levels in the Wind Band Options

Strike/Wind Probability Analysis Tab


HURRTRAK Advanced 2010: Hurricane IKE31 - 09/08/2008 17:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Undo Display Plot Animate Stretch End annotate Print/Export Save Image Tab Help
Location Impact Report
Database / IKE31 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Florida Landsat
Multiple storm tracking chart
Forecast Wind Bands
Wind Probability- 50 Knot (58 mph)
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays two types of probabilities. It graphically displays either the total, next 24 hours, 24-36 hour period, 36-48 hour period or 48-72 hour period strike probabilities OR the total 34 knot, 50 knot or 64 knot wind probabilities… on a tracking chart. The values are contoured as set in the Strike/Wind Probabilities Option. Additional storm tracking and analysis functions are available from here. Note: the Strike Probabilities are no longer used by the National Hurricane Center and will likely be phased out of this system.

Tab Created by: Map Select Tab, Variable Track Chart Tab, Favorite Tracking Chart Tab

Tab Close Allowed: Yes

Functions Available:

Menu: Standard System Menu Functions

Send - Sends current tab's image as graphic or pdf via email image as shown on page 156.

Undo - Removes the last change or all changes to the tracking chart.

Display - For a complete list of display options see page 162.

Plot - For a complete list of Plot options see page 163.

Stretch - Fills the entire screen with the current tab's image. No functions can be performed while in stretch mode.

Annotate – Allows the user to place text on the current image.

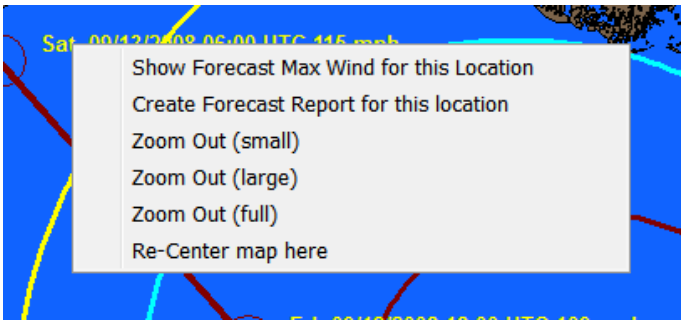
Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.

Save Image – Saves the image to the clipboard or file (color or B&W), PDF or add to Email Outbox.

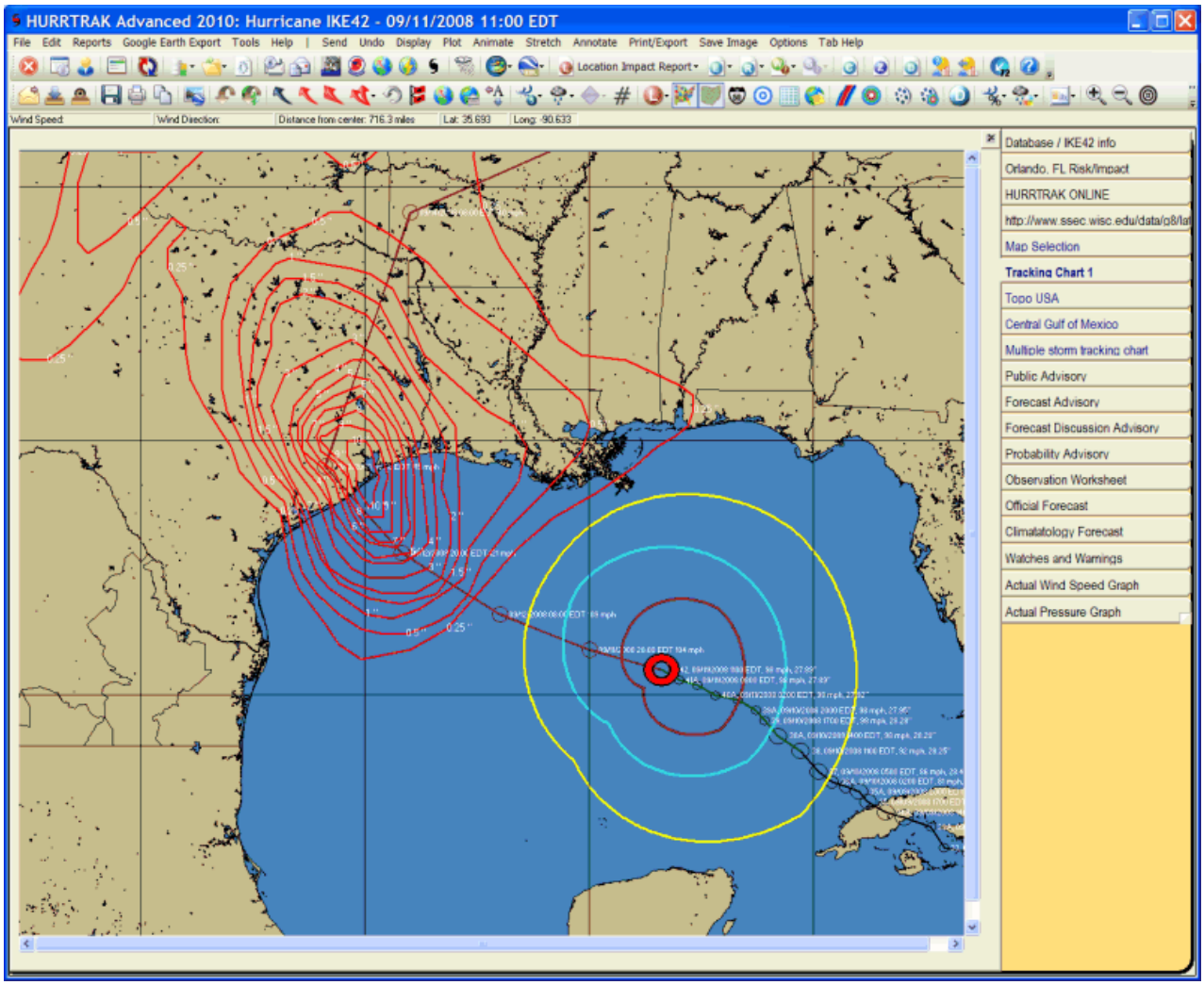
Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Miscellaneous:

The user can zoom in by rubber-banding an area on the screen. Other pan and zoom options are available by right clicking anywhere on the map image.


Show Forecast Max Wind for this Location
Create Forecast Report for this location
Zoom Out (small)
Zoom Out (large)
Zoom Out (full)
Re-Center map here

Forecast Rainfall Analysis Tab



Description: This tab displays the National Weather Service's official 24-hour rainfall forecast for the next 3 days. Additional tracking and analysis functions are available from here.

Tab Created by: Map Select Tab, Variable Track Chart Tab, Favorite Tracking Chart Tab

Tab Close Allowed: Yes

Functions Available:

Menu: Standard System Menu Functions

Send - Sends current tab's image as graphic or pdf via email image as shown on page 156.

Undo - Removes the last change or all changes to the tracking chart.

Display - For a complete list of display options see page 157.

Plot - For a complete list of Plot options see page 159.

Stretch - Fills the entire screen with the current tab's image. No functions can be performed while in stretch mode.

Annotate – Allows the user to place text on the current image.

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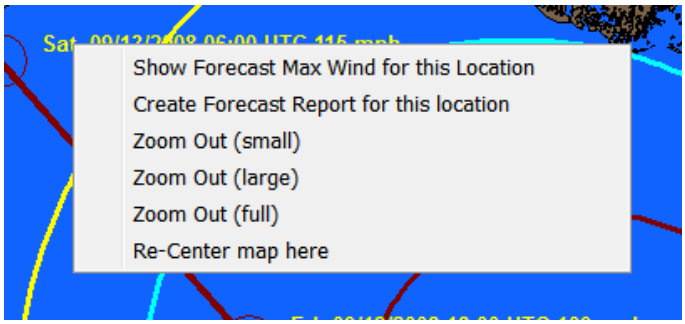
Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.

Save Image – Saves the image to the clipboard or file (color or B&W), pdf or add to Email outbox.

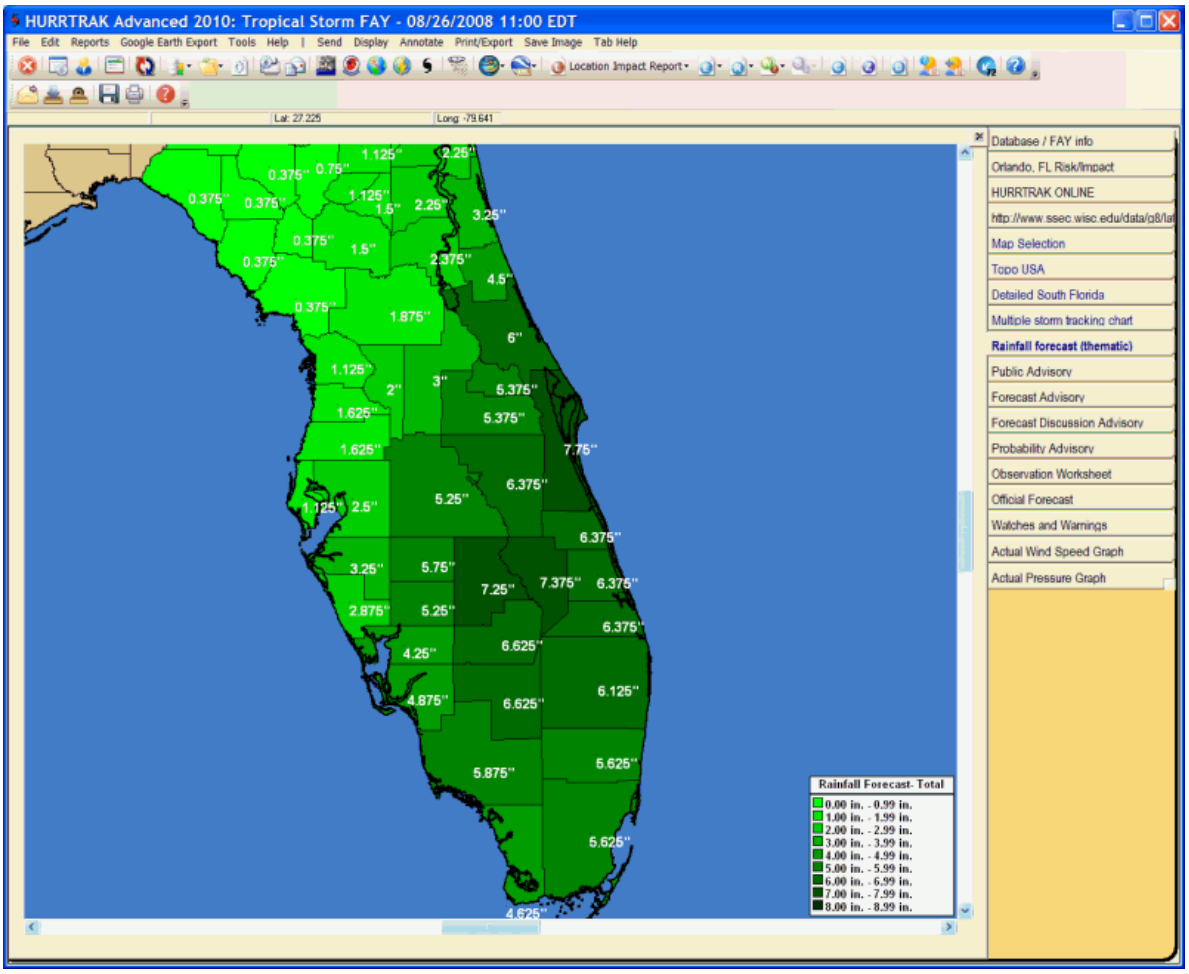
Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Miscellaneous:

The user can zoom in by rubber-banding an area on the screen. Other pan and zoom options are available by right clicking anywhere on the map image.


Show Forecast Max Wind for this Location
Create Forecast Report for this location
Zoom Out (small)
Zoom Out (large)
Zoom Out (full)
Re-Center map here

Forecast Rainfall Thematic Tab


HURRTRAK Advanced 2010: Tropical Storm FAY - 08/26/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Display Annotate Print/Export Save Image Tab Help
Location Impact Report
Database / FAY info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Detailed South Florida
Multiple storm tracking chart
Rainfall forecast (thematic)
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph
Rainfall Forecast- Total
0.00 in. - 0.99 in.
1.00 in. - 1.99 in.
2.00 in. - 2.99 in.
3.00 in. - 3.99 in.
4.00 in. - 4.99 in.
5.00 in. - 5.99 in.
6.00 in. - 6.99 in.
7.00 in. - 7.99 in.
8.00 in. - 8.99 in.

Description: This tab displays the National Weather Service's official 24 or 72-hour rainfall forecast for the next 3 days in a county thematic fashion. Additional tracking and analysis functions are available from here.

Tab Created by: Map Select Tab, Variable Track Chart Tab, Favorite Tracking Chart Tab

Tab Close Allowed: Yes

Functions Available:

Menu: Standard System Menu Functions

Send - Sends current tab's image as graphic or pdf via email image as shown on page 156.

Display - For a complete list of wind band display options see page 164.

Annotate – Allows the user to place text on the current image.

Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.

Save Image – Saves the image to the clipboard, image file, pdf or Add to Email Outbox.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

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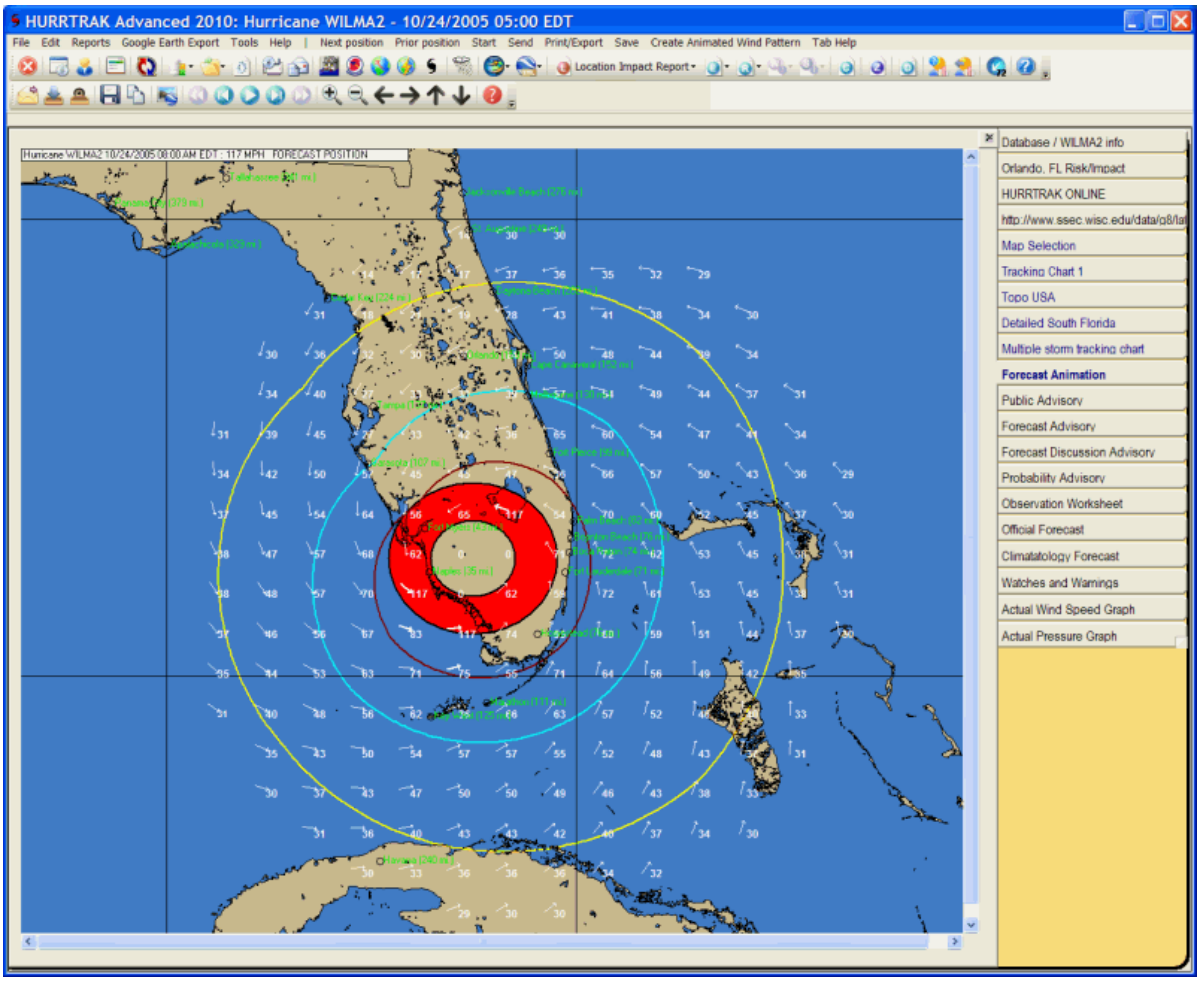
Animation Tab



Description: This tab displays an animation of the storm's motion either as wind radii OR as a wind pattern. Additional tracking and analysis functions are available from here.

Tab Created by: Map Select Tab, Variable Track Chart Tab, Favorite Tracking Chart Tab, and Animation Tab (when selecting Create Wind Pattern Animation)

Tab Close Allowed: Yes

Functions Available:

Menu: Standard System Menu Functions

Next Position - When in single step mode, this moves the storm forward 1 hour.

Prior Position - When in single step mode, this moves the storm backward 1 hour.

Start/Stop - When in single pass or continuous loop mode this option will stop or start the animation.

Send - Sends current tab's image or animation sequence via email. Animation file characteristics are controlled by the User Preferences – Email setup option.

Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 305 for more information on the Google Earth interface.

Save Image – Saves the image or animation sequence to a file, the clipboard, pdf file, animated GIF or add to Email Outbox.

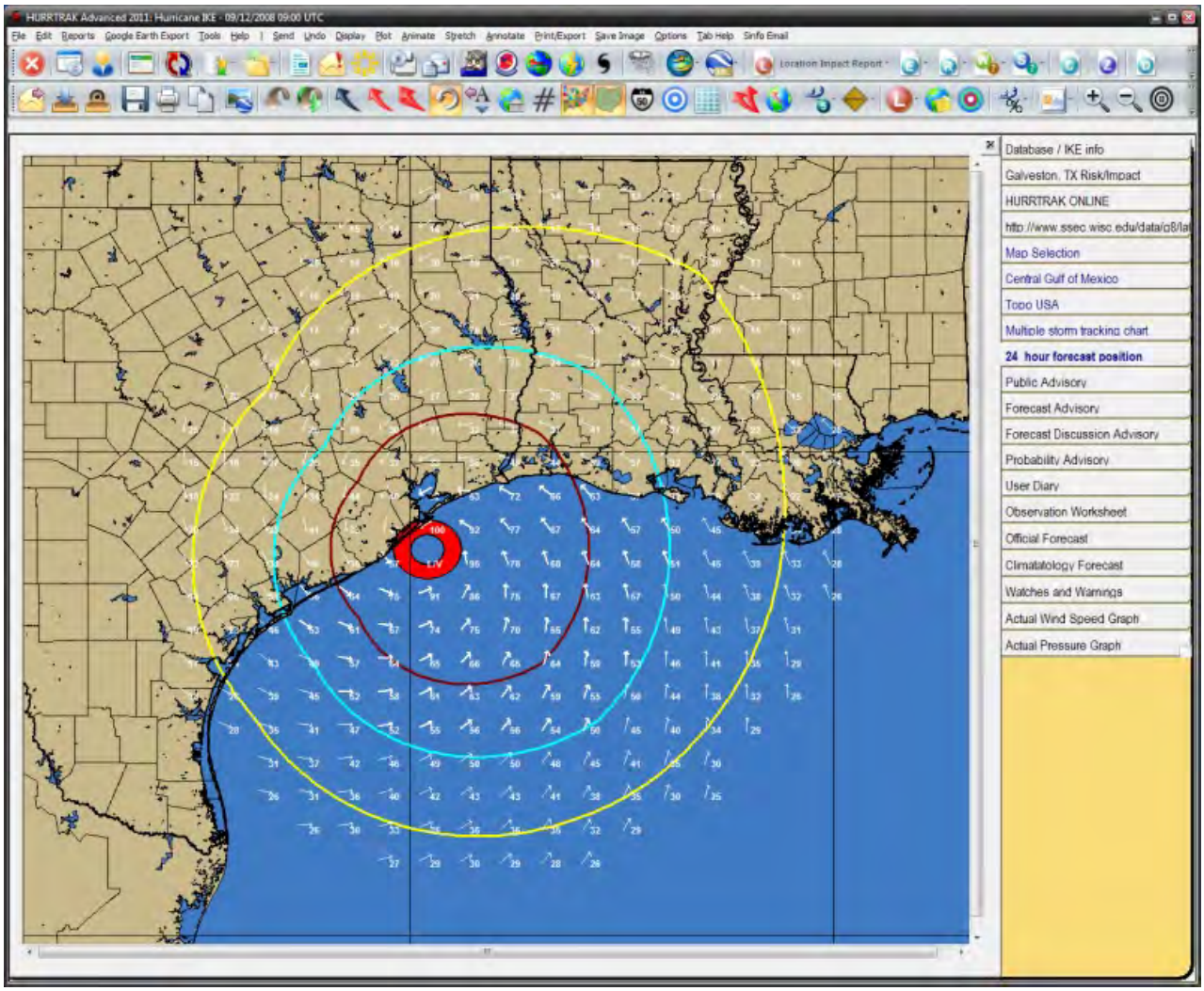
- **Create Animated Wind Pattern** – This option will stop the current animation and build/display a Wind Pattern Animation sequence. This can be a very time consuming process and no new animations can be started. If you are going to use this function, it is imperative that you download the processed RI files. You can find out more about the Processed RI files on the topic of Plotting Options on page 84.
- **Stop Processing** – This option is only available when a Wind Pattern Animation is being built (first loop). It will stop the current operation and display the wind pattern animation that has been built so far. You cannot resume the wind pattern animation build after it has been stopped.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Miscellaneous:
The user can zoom in by rubber-banding an area on the screen or selecting one of the zoom out or pan options. You need to stop the animation before performing any of these actions.

Tips:
- The first loop of either the wind radii animation or the wind pattern animation builds the animation frame file. After the first loop, the animation speed is based on the settings in your user preferences (animation options). The first loop of the wind pattern animation may take a very long time.
- There is a complete set of animation options which are set in user preferences - animation options.
- Selecting the animate option presents the user with the option of animating on the current chart or a refreshed chart (one with just the base geographical map). Selecting the option to animate using the current chart as the animation chart allows the user to first plot desired "background" items such as forecast tracks, range rings, etc., and have those appear during the animation.
- Animation files can be very large. For smaller file sizes, do not animate on Satellite, Radar or Landsat images.
- If you want to save an animation, be sure to select that option, as otherwise, they are deleted when you are done viewing them. This is especially important to keep in mind when creating wind pattern animations due to the amount of time they take to create.

Forecast Position Tab



Description: This tab displays the 1 to 120 hour forecast position of a storm.

Tab Created by: Selecting the plot forecast position option from Tracking Chart Select Tab.

Tab Close Allowed: Yes

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's image as graphic or pdf via email image as shown on page 156.

Undo - Removes the last change or all changes to the tracking chart.

Display - For a complete list of display options see page 157.

Plot - For a complete list of Plot options see page 159.

Animate - Animates the storm's actual and/or forecast motion on a separate tab.

Stretch - Fills the entire screen with the current tab's image. No functions can be performed while in stretch mode.

Annotate – Allows the user to place text on the current image.

Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.

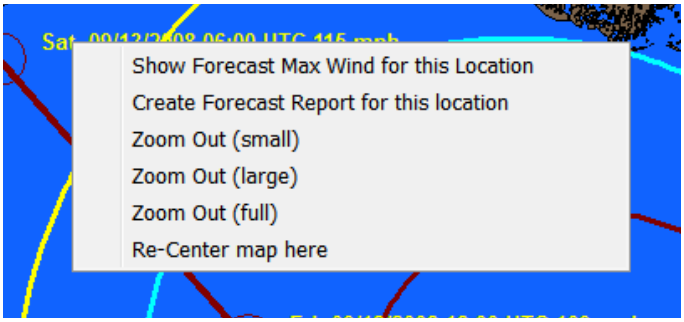
Save Image – Saves the image to the clipboard or file (color or B&W).

Options – Allows the user to show mousepointer data and turn the status bar on/off.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

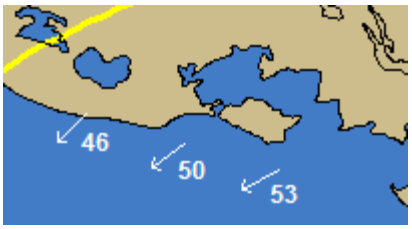
Miscellaneous:

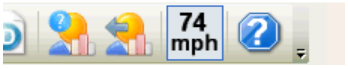
The user can zoom in by rubber-banding an area on the screen. Other pan and zoom options are available by **right clicking** anywhere on the map image.


Show Forecast Max Wind for this Location
Create Forecast Report for this location
Zoom Out (small)
Zoom Out (large)
Zoom Out (full)
Re-Center map here

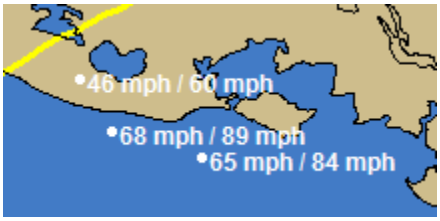
Left Clicking on a tracking map will display either the current wind vector (arrow) for the mouse position or the forecast wind speed for that location. This is controlled by toggling a toolbar button which is located on the primary toolbar.

- In this mode, a left click will display the wind speed/direction at that point, at the current time.



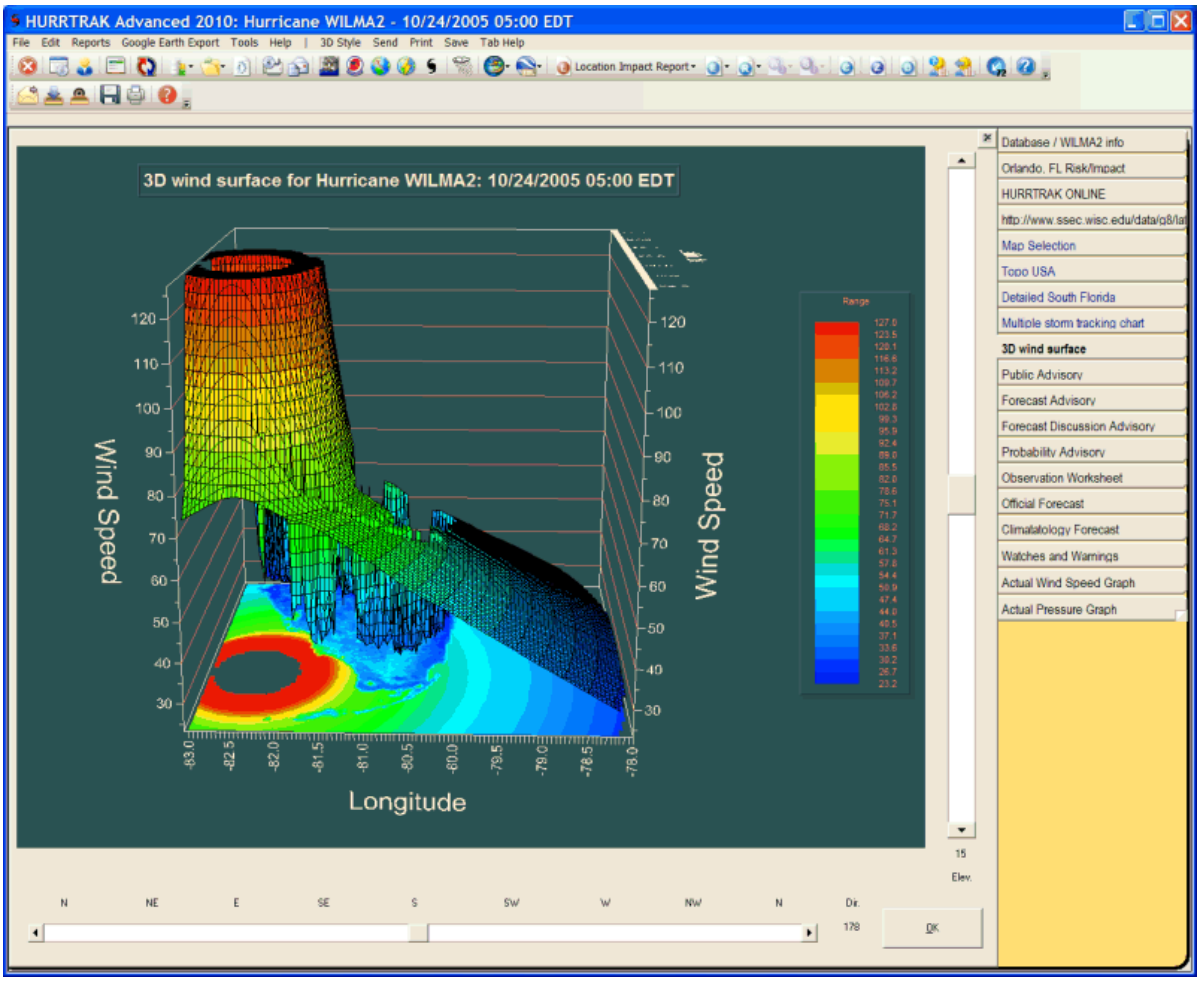


- In this mode, a left click will display the forecast wind speeds (sustained and gusts) at the point.



Tips: Selecting "all possible times" when selecting this option will present you with a list of hourly forecast times.

Wind Surface Tab



Description: This tab displays a 3D wind surface image of the current storm. The 3D wind surface lets the user visualize the wind structure of the storm in a 3-dimensional manner. You can "move around" the storm by moving the horizontal sliding scale. The default "view" is from the South (180). You can also move "up and down" by moving the vertical sliding scale. The default elevation is 0. There are several controls that set in the General Options which determine how this function operates. One which determines the density or level of detail of the graph and the other sets how the image is to be updated (with the movement of the sliding scale or by pressing the OK button).

Tab Created by: Variable tracking chart Tab, Favorite Tracking Chart Tab

Tab Close Allowed: Yes

Functions Available:

Menu:

Standard System Menu Functions

3D Style - Allows the user to change the 3D surface graph to a 2D “contour" analysis or back to the default surface analysis.

Send - Sends current tab’s image as graphic or pdf via email image as shown on page 156.

Print - Prints an image of the graph to the windows printer.

Save Image - Saves the image to a BMP file or adds it to the Email Outbox.

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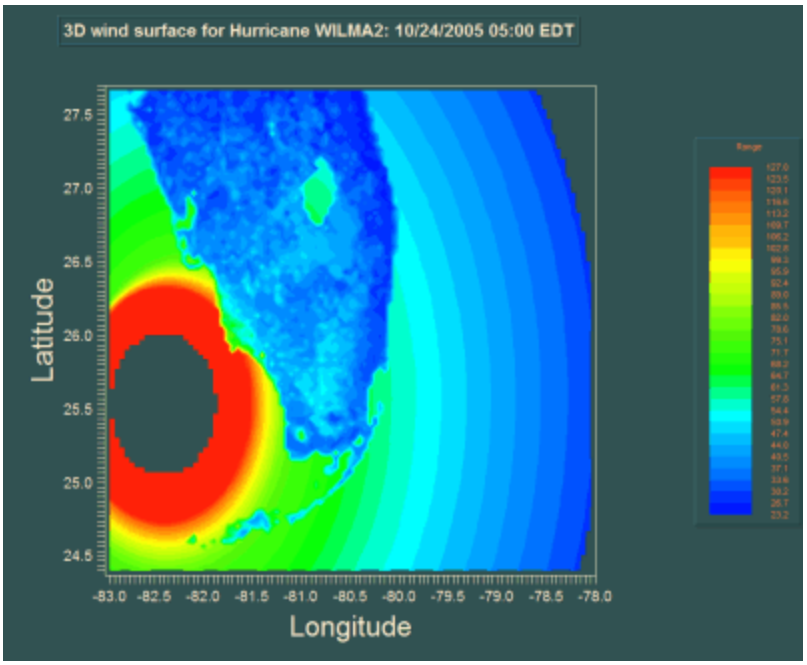
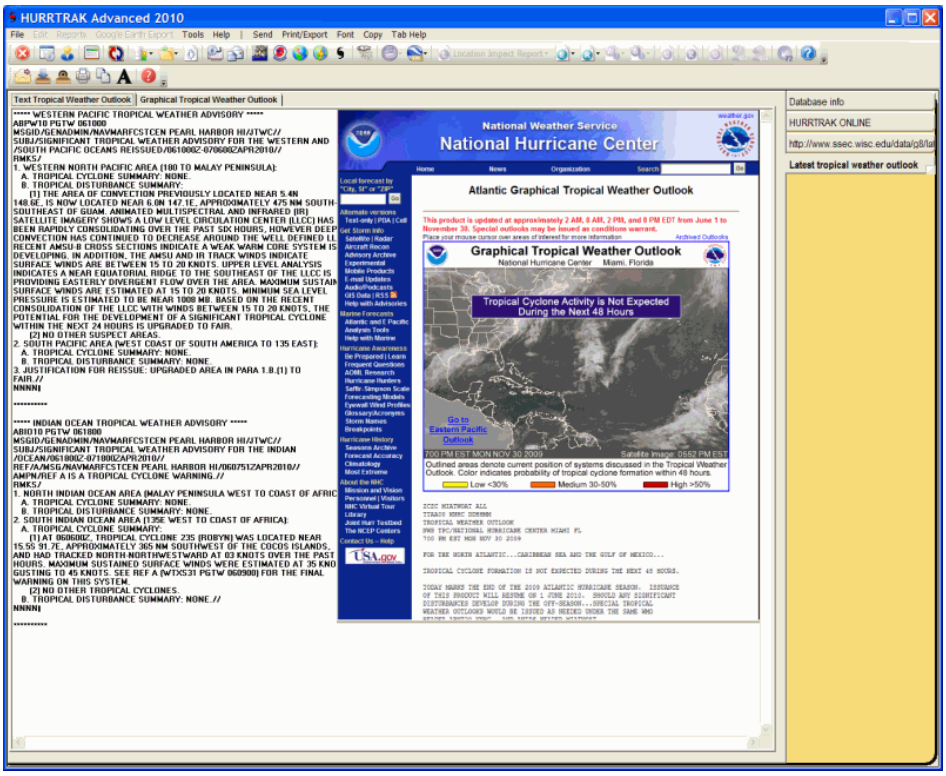
Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

TIPS: To create a useful image, select a chart where the storm wind field fills most of the area when choosing this function.

The 2D Contour Analysis looks like the following image with Advanced Wind Estimation on.



Tropical Weather Outlook Tab


HURRTRAK Advanced 2010
Text Tropical Weather Outlook
Graphical Tropical Weather Outlook
National Weather Service
National Hurricane Center
Atlantic Graphical Tropical Weather Outlook
Graphical Tropical Weather Outlook
Tropical Cyclone Activity is Not Expected During the Next 48 Hours
Database info
HURRTRAK ONLINE
Latest tropical weather outlook

Description: This tab displays the latest Tropical Weather Outlook. If a global system, this tab will show the tropical weather outlooks for all of the tropical basins. In addition to the text, it will also show the new Graphical TWO product. Global / Hurrtrak Advanced users will also see the graphical outlooks for the Western Pacific and Indian Ocean.

Tab Created by: Visible if the latest tropical weather outlook is no more than 30 days old unless deselected in General Options.

Tab Close Allowed: No

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or via email image as shown on page 156.

Print:

Save to Email Outbox – Saves the text portion to the Email Outbox.

Print Preview - Previews the printed output on your screen.

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

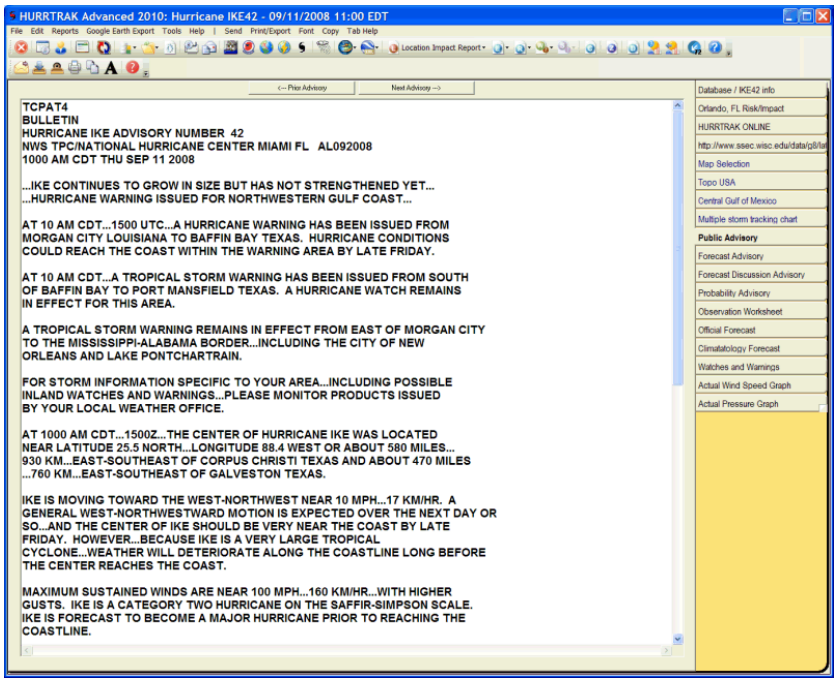
Export to PDF – Exports the output to a PDF format.

Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available. If you want to print out the data in portrait mode, and it does not fix across 1 page, you may need to temporarily reduce the font size before printing.

Copy - This option copies the tropical weather outlook text to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Public Advisory Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Tab Help
<-- Prior Advisory
Next Advisory -->
TCPAT4
BULLETIN
HURRICANE IKE ADVISORY NUMBER 42
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL092008
1000 AM CDT THU SEP 11 2008
...IKE CONTINUES TO GROW IN SIZE BUT HAS NOT STRENGTHENED YET...
...HURRICANE WARNING ISSUED FOR NORTHWESTERN GULF COAST...
AT 10 AM CDT...1500 UTC...A HURRICANE WARNING HAS BEEN ISSUED FROM MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS. HURRICANE CONDITIONS COULD REACH THE COAST WITHIN THE WARNING AREA BY LATE FRIDAY.
AT 10 AM CDT...A TROPICAL STORM WARNING HAS BEEN ISSUED FROM SOUTH OF BAFFIN BAY TO PORT MANSFIELD TEXAS. A HURRICANE WATCH REMAINS IN EFFECT FOR THIS AREA.
A TROPICAL STORM WARNING REMAINS IN EFFECT FROM EAST OF MORGAN CITY TO THE MISSISSIPPI-ALABAMA BORDER...INCLUDING THE CITY OF NEW ORLEANS AND LAKE PONTCHARTRAIN.
FOR STORM INFORMATION SPECIFIC TO YOUR AREA...INCLUDING POSSIBLE INLAND WATCHES AND WARNINGS...PLEASE MONITOR PRODUCTS ISSUED BY YOUR LOCAL WEATHER OFFICE.
AT 1000 AM CDT...1500Z...THE CENTER OF HURRICANE IKE WAS LOCATED NEAR LATITUDE 25.5 NORTH...LONGITUDE 88.4 WEST OR ABOUT 580 MILES... 930 KM...EAST-SOUTHEAST OF CORPUS CHRISTI TEXAS AND ABOUT 470 MILES ...760 KM...EAST-SOUTHEAST OF GALVESTON TEXAS.
IKE IS MOVING TOWARD THE WEST-NORTHWEST NEAR 10 MPH...17 KM/HR. A GENERAL WEST-NORTHWESTWARD MOTION IS EXPECTED OVER THE NEXT DAY OR SO...AND THE CENTER OF IKE SHOULD BE VERY NEAR THE COAST BY LATE FRIDAY. HOWEVER...BECAUSE IKE IS A VERY LARGE TROPICAL CYCLONE...WEATHER WILL DETERIORATE ALONG THE COASTLINE LONG BEFORE THE CENTER REACHES THE COAST.
MAXIMUM SUSTAINED WINDS ARE NEAR 100 MPH...160 KM/HR...WITH HIGHER GUSTS. IKE IS A CATEGORY TWO HURRICANE ON THE SAFFIR-SIMPSON SCALE.
IKE IS FORECAST TO BECOME A MAJOR HURRICANE PRIOR TO REACHING THE COASTLINE.
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
http://www.ssec.wisc.edu/data/g8/lat
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays the latest National Hurricane Center Public Advisory for the current loaded storm. This may contain JTWC information for storms outside of the Atlantic.

Tab Created by: This tab is visible if the Public Advisory is present and is not more than 6 hours old.

Tab Close Allowed: No, however, this tab can be deselected in General Options so that it would never appear.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or PDF via email image as shown on page 156.

Print:.

Save to Email Outbox – Save text to Email outbox as a PDF file

Print Preview - Previews the printed output on your screen

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

Export to PDF – Exports the output to a PDF format.

Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips:

- You can view the earlier advisories by selecting the prior and next advisory buttons.
- When you are viewing an earlier advisory, the background color changes to a manila color.

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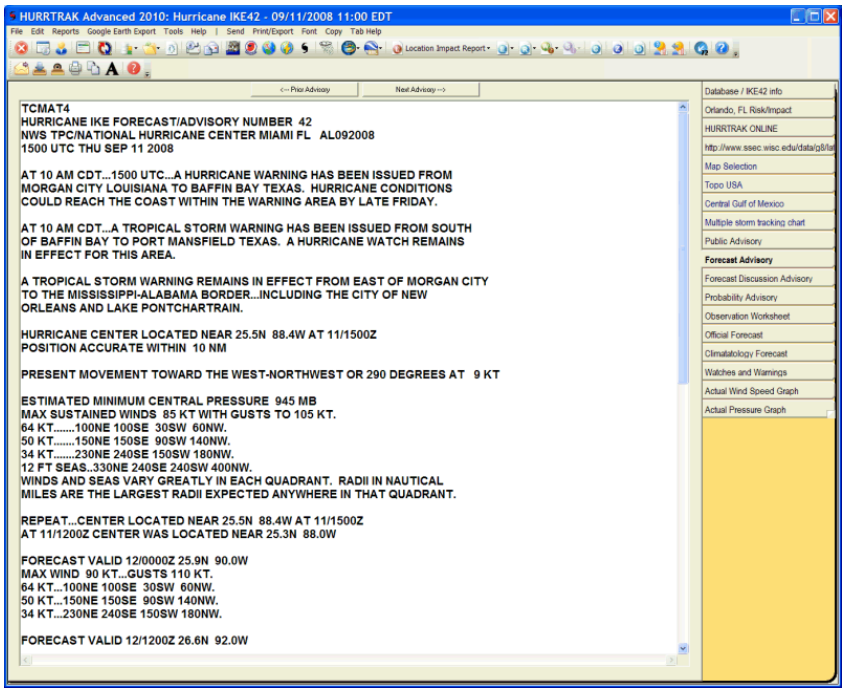
Forecast Advisory Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Tab Help
<-- Prior Advisory
Next Advisory -->
TCMAT4
HURRICANE IKE FORECAST/ADVISORY NUMBER 42
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL092008
1500 UTC THU SEP 11 2008
AT 10 AM CDT...1500 UTC...A HURRICANE WARNING HAS BEEN ISSUED FROM MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS. HURRICANE CONDITIONS COULD REACH THE COAST WITHIN THE WARNING AREA BY LATE FRIDAY.
AT 10 AM CDT...A TROPICAL STORM WARNING HAS BEEN ISSUED FROM SOUTH OF BAFFIN BAY TO PORT MANSFIELD TEXAS. A HURRICANE WATCH REMAINS IN EFFECT FOR THIS AREA.
A TROPICAL STORM WARNING REMAINS IN EFFECT FROM EAST OF MORGAN CITY TO THE MISSISSIPPI-ALABAMA BORDER...INCLUDING THE CITY OF NEW ORLEANS AND LAKE PONTCHARTRAIN.
HURRICANE CENTER LOCATED NEAR 25.5N 88.4W AT 11/1500Z
POSITION ACCURATE WITHIN 10 NM
PRESENT MOVEMENT TOWARD THE WEST-NORTHWEST OR 290 DEGREES AT 9 KT
ESTIMATED MINIMUM CENTRAL PRESSURE 945 MB
MAX SUSTAINED WINDS 85 KT WITH GUSTS TO 105 KT.
64 KT.....100NE 100SE 30SW 60NW.
50 KT.....150NE 150SE 90SW 140NW.
34 KT.....230NE 240SE 150SW 180NW.
12 FT SEAS..330NE 240SE 240SW 400NW.
WINDS AND SEAS VARY GREATLY IN EACH QUADRANT. RADII IN NAUTICAL MILES ARE THE LARGEST RADII EXPECTED ANYWHERE IN THAT QUADRANT.
REPEAT...CENTER LOCATED NEAR 25.5N 88.4W AT 11/1500Z
AT 11/1200Z CENTER WAS LOCATED NEAR 25.3N 88.0W
FORECAST VALID 12/0000Z 25.9N 90.0W
MAX WIND 90 KT...GUSTS 110 KT.
64 KT...100NE 100SE 30SW 60NW.
50 KT...150NE 150SE 90SW 140NW.
34 KT...230NE 240SE 150SW 180NW.
FORECAST VALID 12/1200Z 26.6N 92.0W
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays the latest National Hurricane Center Forecast Advisory for the current loaded storm. This may contain JTWC information for storms outside of the Atlantic.

Tab Created by: This tab is visible if the Forecast Advisory is present and is not more than 6 hours old.

Tab Close Allowed: No, however, this tab can be deselected in General Options.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or PDF via email image as shown on page 156.

Print:.

Save to Email Outbox – Save text to Email outbox as a PDF file

Print Preview - Previews the printed output on your screen

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

Export to PDF – Exports the output to a PDF format.

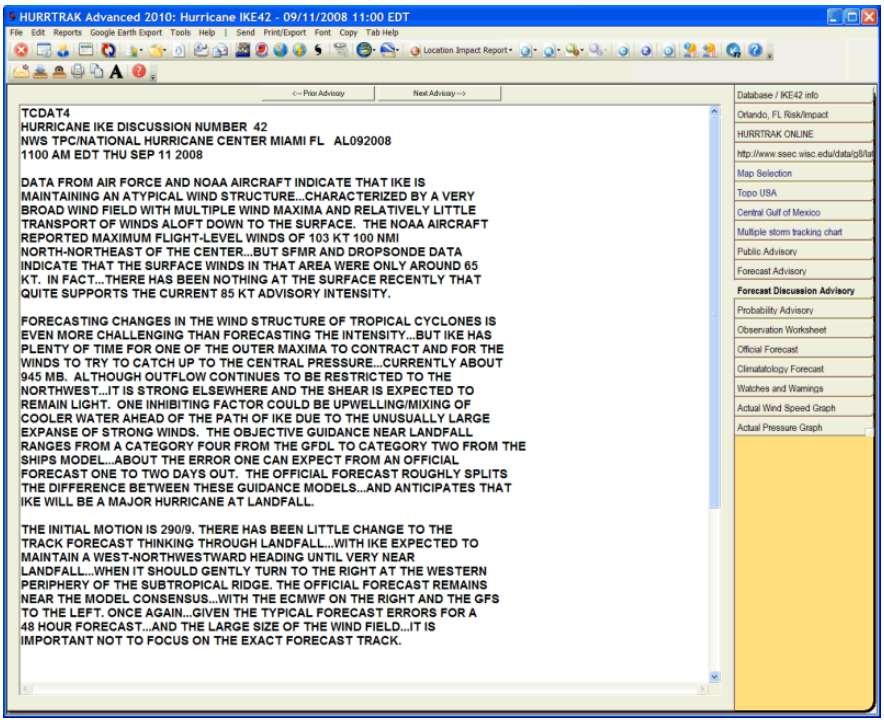
Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips: You can view the earlier advisories by selecting the prior and next advisory buttons. When you are viewing an earlier advisory, the background color changes to a manila color

Forecast Discussion Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Tab Help
<--Prior Advisory
Next Advisory-->
TCDAT4
HURRICANE IKE DISCUSSION NUMBER 42
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL092008
1100 AM EDT THU SEP 11 2008
DATA FROM AIR FORCE AND NOAA AIRCRAFT INDICATE THAT IKE IS
MAINTAINING AN ATYPICAL WIND STRUCTURE...CHARACTERIZED BY A VERY
BROAD WIND FIELD WITH MULTIPLE WIND MAXIMA AND RELATIVELY LITTLE
TRANSPORT OF WINDS ALOFT DOWN TO THE SURFACE. THE NOAA AIRCRAFT
REPORTED MAXIMUM FLIGHT-LEVEL WINDS OF 103 KT 100 NMI
NORTH-NORTHEAST OF THE CENTER...BUT SFMR AND DROPSONDE DATA
INDICATE THAT THE SURFACE WINDS IN THAT AREA WERE ONLY AROUND 65
KT. IN FACT...THERE HAS BEEN NOTHING AT THE SURFACE RECENTLY THAT
QUITE SUPPORTS THE CURRENT 85 KT ADVISORY INTENSITY.
FORECASTING CHANGES IN THE WIND STRUCTURE OF TROPICAL CYCLONES IS
EVEN MORE CHALLENGING THAN FORECASTING THE INTENSITY...BUT IKE HAS
PLENTY OF TIME FOR ONE OF THE OUTER MAXIMA TO CONTRACT AND FOR THE
WINDS TO TRY TO CATCH UP TO THE CENTRAL PRESSURE...CURRENTLY ABOUT
945 MB. ALTHOUGH OUTFLOW CONTINUES TO BE RESTRICTED TO THE
NORTHWEST...IT IS STRONG ELSEWHERE AND THE SHEAR IS EXPECTED TO
REMAIN LIGHT. ONE INHIBITING FACTOR COULD BE UPWELLING/MIXING OF
COOLER WATER AHEAD OF THE PATH OF IKE DUE TO THE UNUSUALLY LARGE
EXPANSE OF STRONG WINDS. THE OBJECTIVE GUIDANCE NEAR LANDFALL
RANGES FROM A CATEGORY FOUR FROM THE GFDL TO CATEGORY TWO FROM THE
SHIPS MODEL...ABOUT THE ERROR ONE CAN EXPECT FROM AN OFFICIAL
FORECAST ONE TO TWO DAYS OUT. THE OFFICIAL FORECAST ROUGHLY SPLITS
THE DIFFERENCE BETWEEN THESE GUIDANCE MODELS...AND ANTICIPATES THAT
IKE WILL BE A MAJOR HURRICANE AT LANDFALL.
THE INITIAL MOTION IS 290/9. THERE HAS BEEN LITTLE CHANGE TO THE
TRACK FORECAST THINKING THROUGH LANDFALL...WITH IKE EXPECTED TO
MAINTAIN A WEST-NORTHWESTWARD HEADING UNTIL VERY NEAR
LANDFALL...WHEN IT SHOULD GENTLY TURN TO THE RIGHT AT THE WESTERN
PERIPHERY OF THE SUBTROPICAL RIDGE. THE OFFICIAL FORECAST REMAINS
NEAR THE MODEL CONSENSUS...WITH THE ECMWF ON THE RIGHT AND THE GFS
TO THE LEFT. ONCE AGAIN...GIVEN THE TYPICAL FORECAST ERRORS FOR A
48 HOUR FORECAST...AND THE LARGE SIZE OF THE WIND FIELD...IT IS
IMPORTANT NOT TO FOCUS ON THE EXACT FORECAST TRACK.
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays the latest National Hurricane Center Forecast Discussion for the current loaded storm. This may contain JTWC information for storms outside of the Atlantic.

Tab Created by: This tab is visible if the Discussion is present and is not more than 6 hours old.

Tab Close Allowed: No, however, this tab can be deselected in General Options.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or PDF via email image as shown on page 156.

Print:.

Save to Email Outbox – Save text to Email outbox as a PDF file

Print Preview - Previews the printed output on your screen

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

Export to PDF – Exports the output to a PDF format.

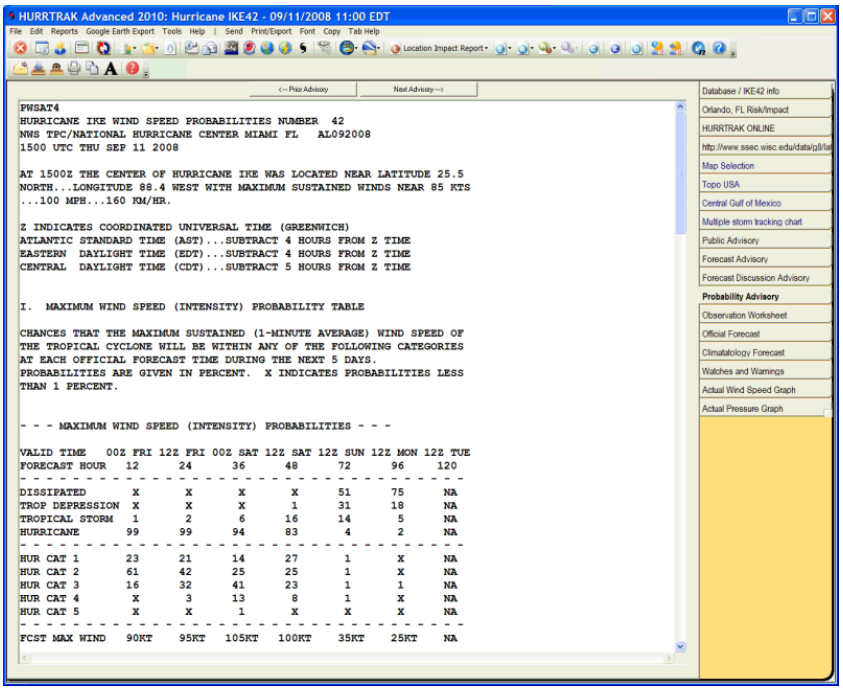
Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips: You can view the earlier advisories by selecting the prior and next advisory buttons. When you are viewing an earlier advisory, the background color changes to a manila color

Probability Advisory Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Tab Help
<-- Prior Advisory
Next Advisory -->
PWSAT4
HURRICANE IKE WIND SPEED PROBABILITIES NUMBER 42
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL092008
1500 UTC THU SEP 11 2008
AT 1500Z THE CENTER OF HURRICANE IKE WAS LOCATED NEAR LATITUDE 25.5
NORTH...LONGITUDE 88.4 WEST WITH MAXIMUM SUSTAINED WINDS NEAR 85 KTS
...100 MPH...160 KM/HR.
Z INDICATES COORDINATED UNIVERSAL TIME (GREENWICH)
ATLANTIC STANDARD TIME (AST)...SUBTRACT 4 HOURS FROM Z TIME
EASTERN DAYLIGHT TIME (EDT)...SUBTRACT 4 HOURS FROM Z TIME
CENTRAL DAYLIGHT TIME (CDT)...SUBTRACT 5 HOURS FROM Z TIME
I. MAXIMUM WIND SPEED (INTENSITY) PROBABILITY TABLE
CHANCES THAT THE MAXIMUM SUSTAINED (1-MINUTE AVERAGE) WIND SPEED OF
THE TROPICAL CYCLONE WILL BE WITHIN ANY OF THE FOLLOWING CATEGORIES
AT EACH OFFICIAL FORECAST TIME DURING THE NEXT 5 DAYS.
PROBABILITIES ARE GIVEN IN PERCENT. X INDICATES PROBABILITIES LESS
THAN 1 PERCENT.
- - - MAXIMUM WIND SPEED (INTENSITY) PROBABILITIES - - -
VALID TIME 00Z FRI 12Z FRI 00Z SAT 12Z SAT 12Z SUN 12Z MON 12Z TUE
FORECAST HOUR 12 24 36 48 72 96 120
DISSIPATED X X X X 51 75 NA
TROP DEPRESSION X X X 1 31 18 NA
TROPICAL STORM 1 2 6 16 14 5 NA
HURRICANE 99 99 94 83 4 2 NA
HUR CAT 1 23 21 14 27 1 X NA
HUR CAT 2 61 42 25 25 1 X NA
HUR CAT 3 16 32 41 23 1 1 NA
HUR CAT 4 X 3 13 8 1 X NA
HUR CAT 5 X X 1 X X X NA
FCST MAX WIND 90KT 95KT 105KT 100KT 35KT 25KT NA
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays the latest National Hurricane Center Wind Probability Advisory for the current loaded storm. This may contain JTWC information for storms outside of the Atlantic.

Tab Created by: This tab is visible if the Probability Advisory is present and is not more than 6 hours old.

Tab Close Allowed: No, however, this tab can be deselected in General Options.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or PDF via email image as shown on page 156.

Print:.

Save to Email Outbox – Save text to Email outbox as a PDF file

Print Preview - Previews the printed output on your screen

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

Export to PDF – Exports the output to a PDF format.

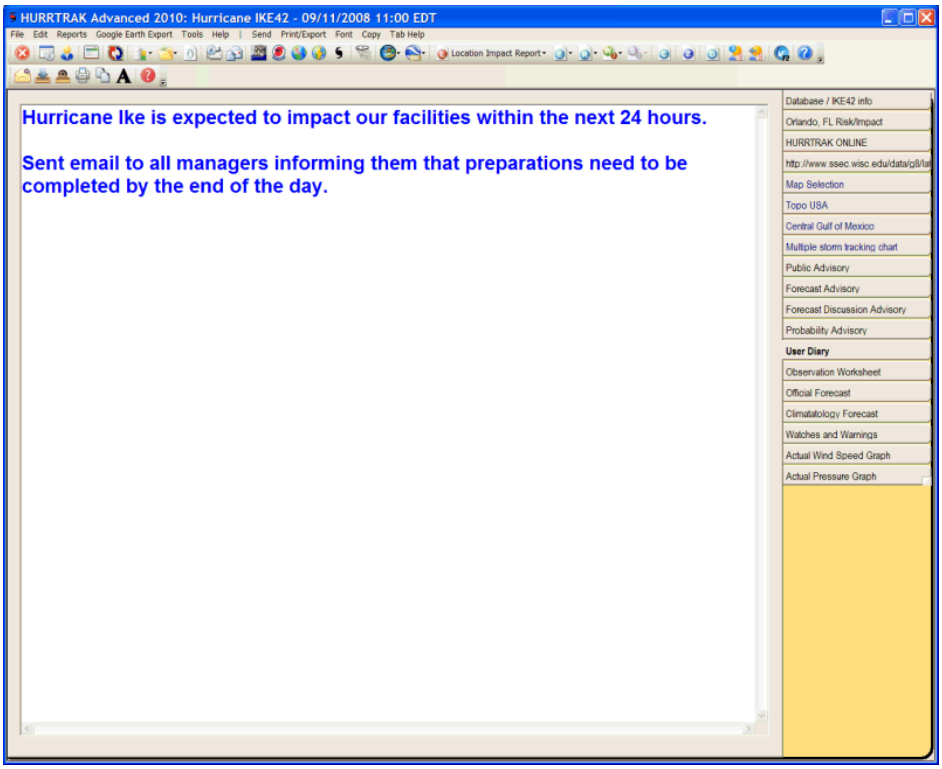
Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips: You can view the earlier advisories by selecting the prior and next advisory buttons. When you are viewing an earlier advisory, the background color changes to a manila color

User Comments (Diary) Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Tab Help
Location Impact Report
Hurricane Ike is expected to impact our facilities within the next 24 hours.
Sent email to all managers informing them that preparations need to be completed by the end of the day.
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
http://www.ssec.wisc.edu/data/g8/la
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays user comments for the current advisory for the current storm.

Tab Created by: This tab is visible if User Comments have been entered for the current advisory.

Tab Close Allowed: No, however, this tab can be deselected in General Options.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or PDF via email image as shown on page 156.

Print:.

Save to Email Outbox – Save text to Email outbox as a PDF file

Print Preview - Previews the printed output on your screen

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

Export to PDF – Exports the output to a PDF format.

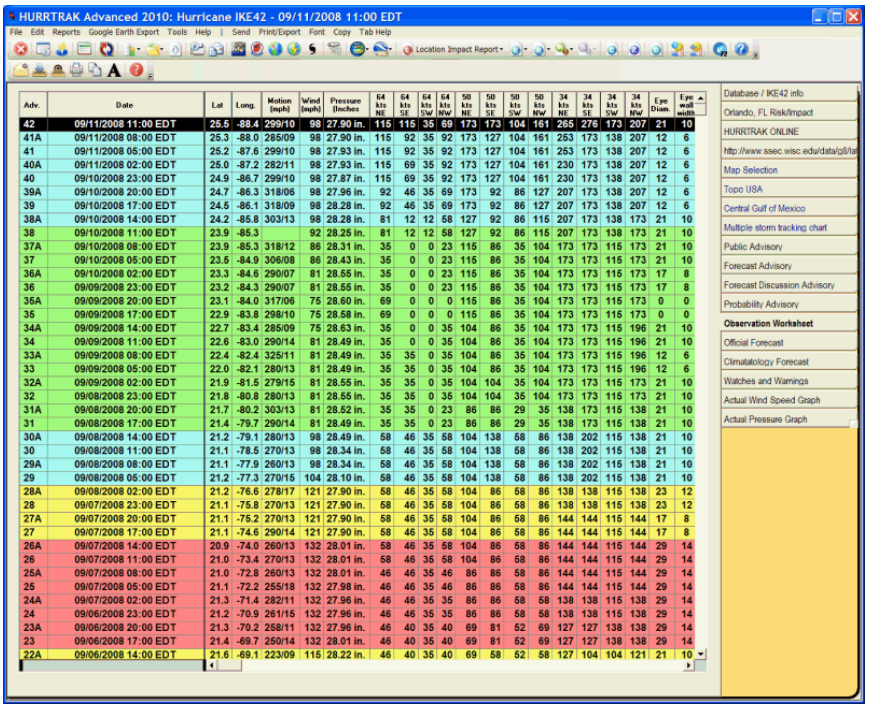
Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips: User comments are included under the graphic in the summary report

Observation Worksheet Table Tab



Adv.	Date	Lat	Long.	Motion (mph)	Wind (mph)	Pressure (Inches	64 kts NE	64 kts SE	64 kts SW	64 kts NW	50 kts NE	50 kts SE	50 kts SW	50 kts NW	34 kts NE	34 kts SE	34 kts SW	34 kts NW	Eye Diam.	Eye wall width
42	09/11/2008 11:00 EDT	25.5	-88.4	299/10	98	27.90 in.	115	115	35	69	173	173	104	161	265	276	173	207	21	10
41A	09/11/2008 08:00 EDT	25.3	-88.0	285/09	98	27.90 in.	115	92	35	92	173	127	104	161	253	173	138	207	12	6
41	09/11/2008 05:00 EDT	25.2	-87.6	299/10	98	27.93 in.	115	92	35	92	173	127	104	161	253	173	138	207	12	6
40A	09/11/2008 02:00 EDT	25.0	-87.2	282/11	98	27.93 in.	115	69	35	92	173	127	104	161	230	173	138	207	12	6
40	09/10/2008 23:00 EDT	24.9	-86.7	299/10	98	27.87 in.	115	69	35	92	173	127	104	161	230	173	138	207	12	6
39A	09/10/2008 20:00 EDT	24.7	-86.3	318/06	98	27.96 in.	92	46	35	69	173	92	86	127	207	173	138	207	12	6
39	09/10/2008 17:00 EDT	24.5	-86.1	318/09	98	28.28 in.	92	46	35	69	173	92	86	127	207	173	138	207	12	6
38A	09/10/2008 14:00 EDT	24.2	-85.8	303/13	98	28.28 in.	81	12	12	58	127	92	86	115	207	173	138	173	21	10
38	09/10/2008 11:00 EDT	23.9	-85.3		92	28.25 in.	81	12	12	58	127	92	86	115	207	173	138	173	21	10
37A	09/10/2008 08:00 EDT	23.9	-85.3	318/12	86	28.31 in.	35	0	0	23	115	86	35	104	173	173	115	173	21	10
37	09/10/2008 05:00 EDT	23.5	-84.9	306/08	86	28.43 in.	35	0	0	23	115	86	35	104	173	173	115	173	21	10
36A	09/10/2008 02:00 EDT	23.3	-84.6	290/07	81	28.55 in.	35	0	0	23	115	86	35	104	173	173	115	173	17	8
36	09/09/2008 23:00 EDT	23.2	-84.3	290/07	81	28.55 in.	35	0	0	23	115	86	35	104	173	173	115	173	17	8
35A	09/09/2008 20:00 EDT	23.1	-84.0	317/06	75	28.60 in.	69	0	0	0	115	86	35	104	173	173	115	173	0	0
35	09/09/2008 17:00 EDT	22.9	-83.8	298/10	75	28.58 in.	69	0	0	0	115	86	35	104	173	173	115	173	0	0
34A	09/09/2008 14:00 EDT	22.7	-83.4	285/09	75	28.63 in.	35	0	0	35	104	86	35	104	173	173	115	196	21	10
34	09/09/2008 11:00 EDT	22.6	-83.0	290/14	81	28.49 in.	35	0	0	35	104	86	35	104	173	173	115	196	21	10
33A	09/09/2008 08:00 EDT	22.4	-82.4	325/11	81	28.49 in.	35	35	0	35	104	86	35	104	173	173	115	196	12	6
33	09/09/2008 05:00 EDT	22.0	-82.1	280/13	81	28.49 in.	35	35	0	35	104	86	35	104	173	173	115	196	12	6
32A	09/09/2008 02:00 EDT	21.9	-81.5	279/15	81	28.55 in.	35	35	0	35	104	104	35	104	173	173	115	173	21	10
32	09/08/2008 23:00 EDT	21.8	-80.8	280/13	81	28.55 in.	35	35	0	35	104	104	35	104	173	173	115	173	21	10
31A	09/08/2008 20:00 EDT	21.7	-80.2	303/13	81	28.52 in.	35	35	0	23	86	86	29	35	138	173	115	138	21	10
31	09/08/2008 17:00 EDT	21.4	-79.7	290/14	81	28.49 in.	35	35	0	23	86	86	29	35	138	173	115	138	21	10
30A	09/08/2008 14:00 EDT	21.2	-79.1	280/13	98	28.49 in.	58	46	35	58	104	138	58	86	138	202	115	138	21	10
30	09/08/2008 11:00 EDT	21.1	-78.5	270/13	98	28.34 in.	58	46	35	58	104	138	58	86	138	202	115	138	21	10
29A	09/08/2008 08:00 EDT	21.1	-77.9	260/13	98	28.34 in.	58	46	35	58	104	138	58	86	138	202	115	138	21	10
29	09/08/2008 05:00 EDT	21.2	-77.3	270/15	104	28.10 in.	58	46	35	58	104	138	58	86	138	202	115	138	21	10
28A	09/08/2008 02:00 EDT	21.2	-76.6	278/17	121	27.90 in.	58	46	35	58	104	86	58	86	138	138	115	138	23	12
28	09/07/2008 23:00 EDT	21.1	-75.8	270/13	121	27.90 in.	58	46	35	58	104	86	58	86	138	138	115	138	23	12
27A	09/07/2008 20:00 EDT	21.1	-75.2	270/13	121	27.90 in.	58	46	35	58	104	86	58	86	144	144	115	144	17	8
27	09/07/2008 17:00 EDT	21.1	-74.6	290/14	121	27.90 in.	58	46	35	58	104	86	58	86	144	144	115	144	17	8
26A	09/07/2008 14:00 EDT	20.9	-74.0	260/13	132	28.01 in.	58	46	35	58	104	86	58	86	144	144	115	144	29	14
26	09/07/2008 11:00 EDT	21.0	-73.4	270/13	132	28.01 in.	58	46	35	58	104	86	58	86	144	144	115	144	29	14
25A	09/07/2008 08:00 EDT	21.0	-72.8	260/13	132	28.01 in.	46	46	35	46	86	86	58	86	144	144	115	144	29	14
25	09/07/2008 05:00 EDT	21.1	-72.2	255/18	132	27.98 in.	46	46	35	46	86	86	58	86	144	144	115	144	29	14
24A	09/07/2008 02:00 EDT	21.3	-71.4	282/11	132	27.96 in.	46	46	35	35	86	86	58	58	138	138	115	138	29	14
24	09/06/2008 23:00 EDT	21.2	-70.9	261/15	132	27.96 in.	46	46	35	35	86	86	58	58	138	138	115	138	29	14
23A	09/06/2008 20:00 EDT	21.3	-70.2	258/11	132	27.96 in.	46	40	35	40	69	81	52	69	127	127	138	138	29	14
23	09/06/2008 17:00 EDT	21.4	-69.7	250/14	132	28.01 in.	46	40	35	40	69	81	52	69	127	127	138	138	29	14
22A	09/06/2008 14:00 EDT	21.6	-69.1	223/09	115	28.22 in.	46	40	35	40	69	58	62	58	127	104	104	121	21	10

Description: This tab displays the observations for the current loaded storm.

Tab Created by: This tab is visible if a storm is loaded.

Tab Close Allowed: No, however, this tab can be deselected in General Options.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or PDF via email image as shown on page 156.

Print:.

Save to Email Outbox – Save text to Email outbox as a PDF file

Print Preview - Previews the printed output on your screen

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

Export to PDF – Exports the output to a PDF format.

Export to Text – Exports the output to a comma delimited file.

Export to EXCEL – Exports the output and opens it in EXCEL format.

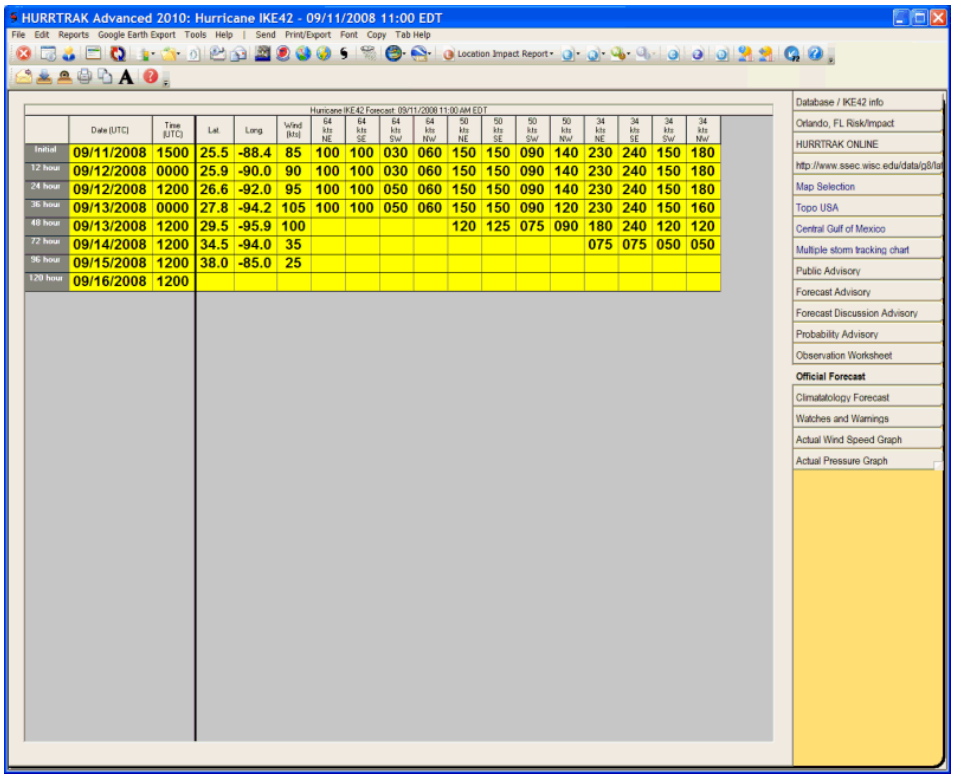
Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips: The observation rows are color-coded based on wind speed.

Official Forecast Table Tab



	Date (UTC)	Time (UTC)	Lat	Long	Wind (kts)	64 kts NE	64 kts SE	64 kts SW	64 kts NW	50 kts NE	50 kts SE	50 kts SW	50 kts NW	34 kts NE	34 kts SE	34 kts SW	34 kts NW
Initial	09/11/2008	1500	25.5	-88.4	85	100	100	030	060	150	150	090	140	230	240	150	180
12 hour	09/12/2008	0000	25.9	-90.0	90	100	100	030	060	150	150	090	140	230	240	150	180
24 hour	09/12/2008	1200	26.6	-92.0	95	100	100	050	060	150	150	090	140	230	240	150	180
36 hour	09/13/2008	0000	27.8	-94.2	105	100	100	050	060	150	150	090	120	230	240	150	160
48 hour	09/13/2008	1200	29.5	-95.9	100					120	125	075	090	180	240	120	120
72 hour	09/14/2008	1200	34.5	-94.0	35									075	075	050	050
96 hour	09/15/2008	1200	38.0	-85.0	25												
120 hour	09/16/2008	1200															

Description: This tab displays the latest official forecast for the current loaded storm.

Tab Created by: This tab is visible if the forecast information is not more than 6 hours old.

Tab Close Allowed: No, however, this tab can be deselected in General Options

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or via email image as shown on page 156.

Print:.

Save to Email Outbox – Save text to Email outbox as a PDF file

Print Preview - Previews the printed output on your screen

Direct to Printer - Prints the output directly to the designated printer.

Export to HTML – Exports the output in an HTML format.

Export to PDF – Exports the output to a PDF format.

Export to Text – Exports the output to a comma delimited file.

Export to EXCEL – Exports the output and opens it in EXCEL format.

Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

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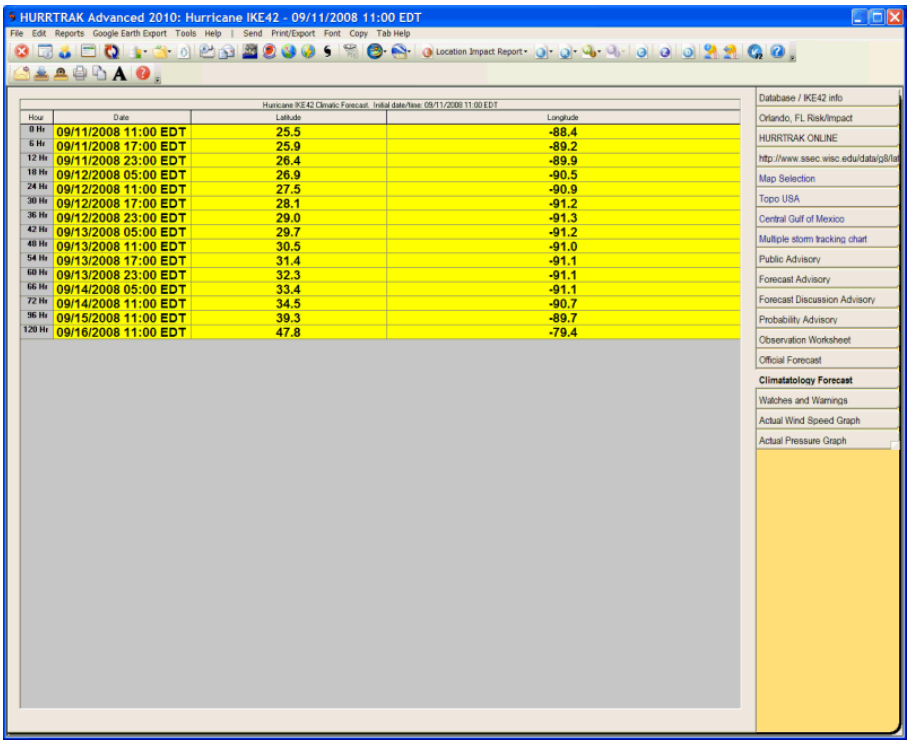
Climate Forecast Table Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Tab Help
Location Impact Report
Hurricane IKE42 Climatic Forecast: Initial date/time: 09/11/2008 11:00 EDT
Hour Date Latitude Longitude
8 Hr 09/11/2008 11:00 EDT 25.5 -88.4
6 Hr 09/11/2008 17:00 EDT 25.9 -89.2
12 Hr 09/11/2008 23:00 EDT 26.4 -89.9
18 Hr 09/12/2008 05:00 EDT 26.9 -90.5
24 Hr 09/12/2008 11:00 EDT 27.5 -90.9
30 Hr 09/12/2008 17:00 EDT 28.1 -91.2
36 Hr 09/12/2008 23:00 EDT 29.0 -91.3
42 Hr 09/13/2008 05:00 EDT 29.7 -91.2
48 Hr 09/13/2008 11:00 EDT 30.5 -91.0
54 Hr 09/13/2008 17:00 EDT 31.4 -91.1
60 Hr 09/13/2008 23:00 EDT 32.3 -91.1
66 Hr 09/14/2008 05:00 EDT 33.4 -91.1
72 Hr 09/14/2008 11:00 EDT 34.5 -90.7
96 Hr 09/15/2008 11:00 EDT 39.3 -89.7
120 Hr 09/16/2008 11:00 EDT 47.8 -79.4
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
http://www.ssec.wisc.edu/data/g8/la
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays the latest climate forecast for the current loaded storm.

Tab Created by: This tab is visible if the forecast information is not more than 6 hours old.

Tab Close Allowed: No, however, this tab can be deselected in General Options

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or via email image as shown on page 156.

Print:.

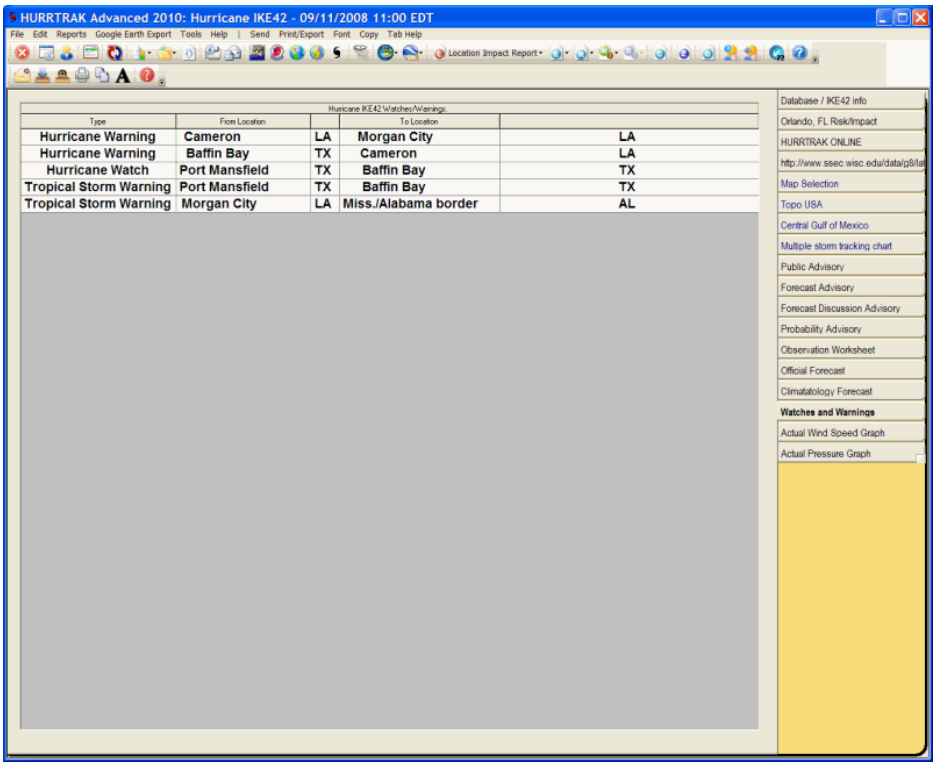
Save to Email Outbox – Save text to Email outbox as a PDF file
Print Preview - Previews the printed output on your screen
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML – Exports the output in an HTML format.
Export to PDF – Exports the output to a PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.

Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Watch and Warning Table Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Tab Help
Location Impact Report
Hurricane IKE42 Watches/Warnings
Type
From Location
To Location
Hurricane Warning Cameron LA Morgan City LA
Hurricane Warning Baffin Bay TX Cameron LA
Hurricane Watch Port Mansfield TX Baffin Bay TX
Tropical Storm Warning Port Mansfield TX Baffin Bay TX
Tropical Storm Warning Morgan City LA Miss./Alabama border AL
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

Description: This tab displays the latest watch and warning data for the current loaded storm.

Tab Created by: This tab is visible if the data is not more than 6 hours old.

Tab Close Allowed: No, however, this tab can be deselected in General Options

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's content as text, html formatted text or via email image as shown on page 156.

Print:.

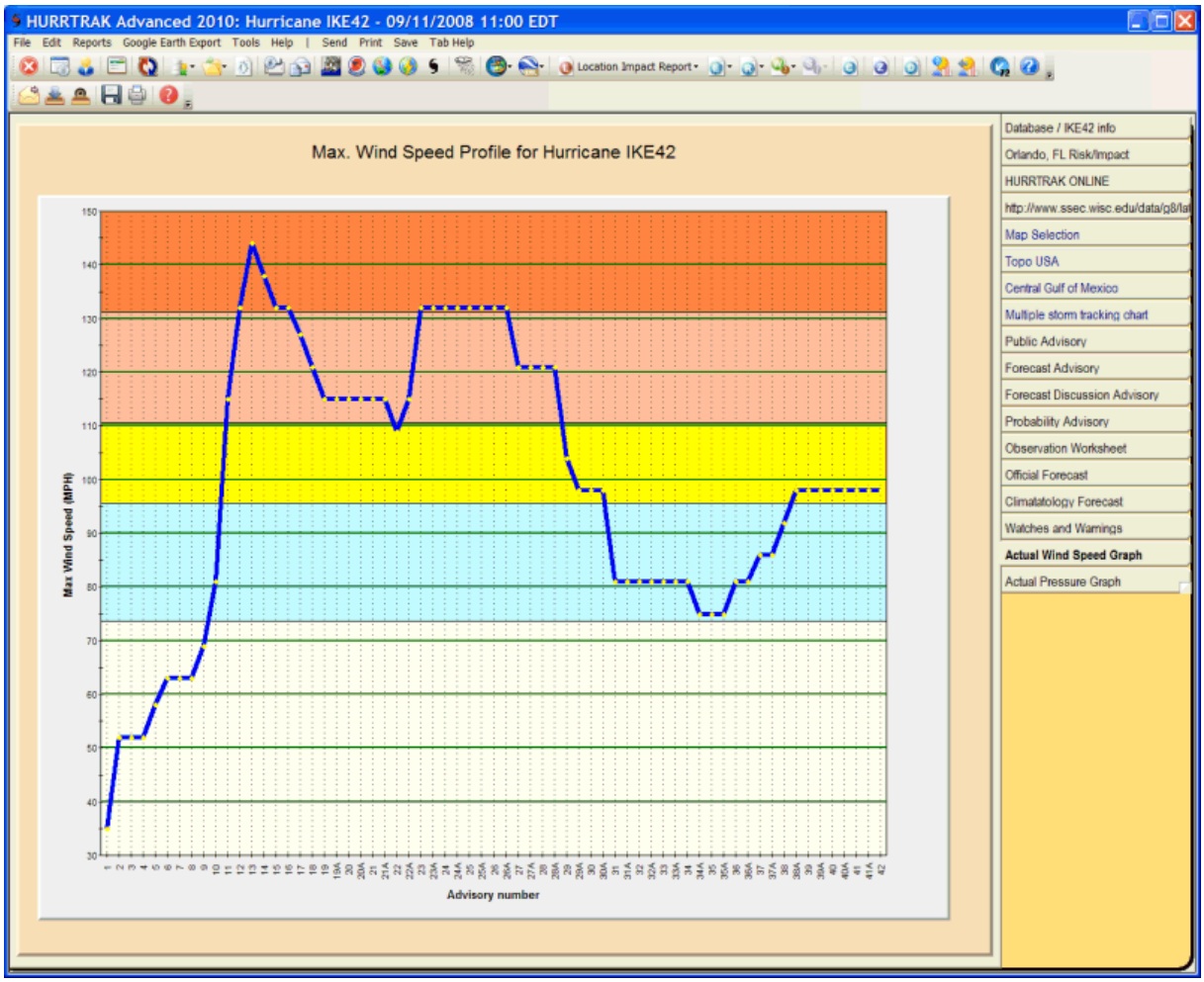
Save to Email Outbox – Save text to Email outbox as a PDF file
Print Preview - Previews the printed output on your screen
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML – Exports the output in an HTML format.
Export to PDF – Exports the output to a PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.

Font - This allows the user to set the screen / printer font type and size. Only matching screen and printer fonts are available

Copy - This option copies the contents of the data form being displayed to the windows clipboard. You can then paste the copied information into another application, etc.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Wind Speed Graph Tab



Description: This tab displays the selected storm's maximum wind speed graph. The unit of measure, MPH or Knots, is based on the UOM options for wind speed.

Tab Created by: This tab is visible if there is more than one storm observation

Tab Close Allowed: No, however, this tab can be deselected in General Options.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's image as graphic of PDF via email image as shown on page on page 156.

Print - Prints the graph to the windows printer. Print Preview.

Save Image - Saves the image to a BMP file or adds image to Email Outbox.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

TIPS: Pointing and clicking on an observation point will display the date, time and wind data for that point.

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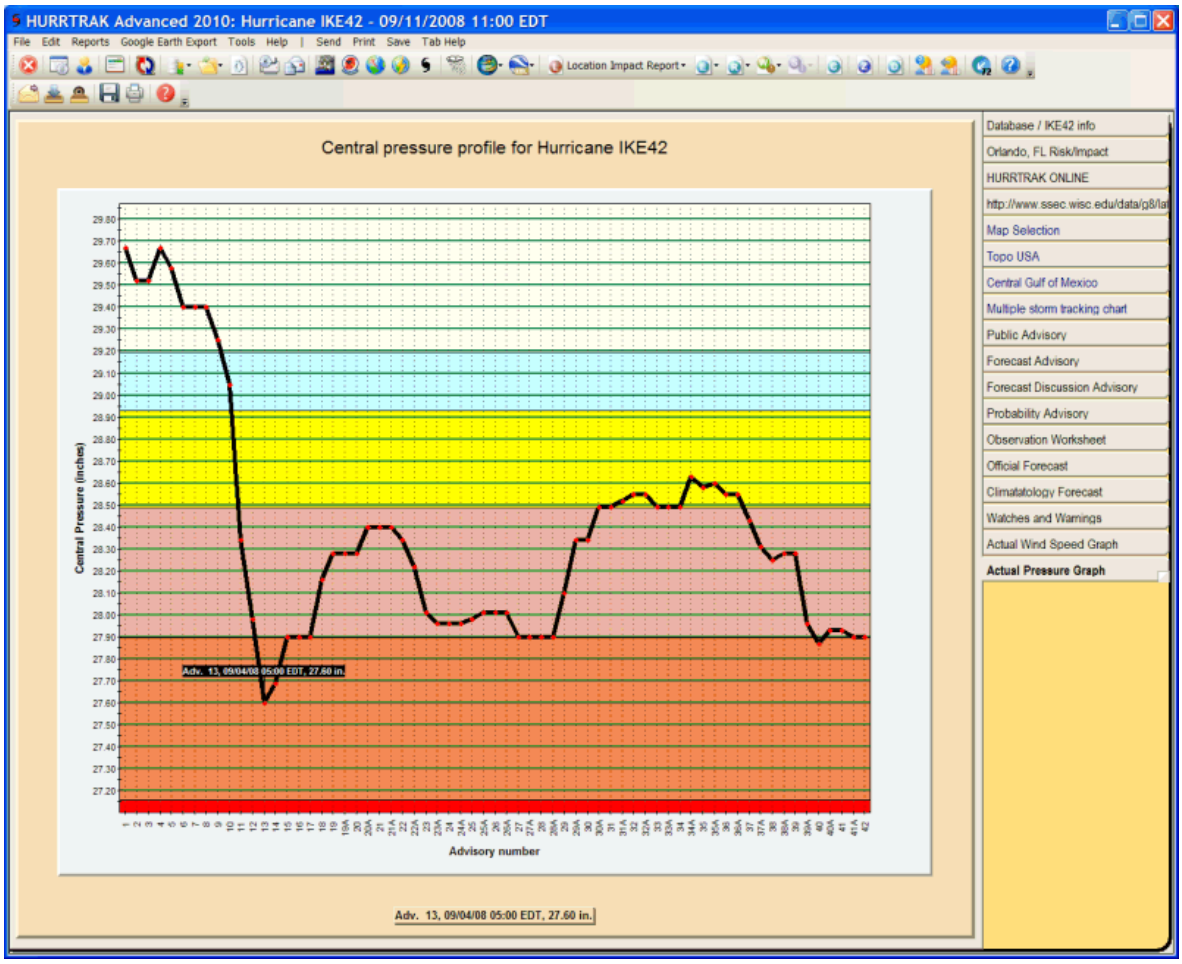
Central Pressure Graph Tab



Description: This tab displays the selected storm's observed central pressure graph. Each bar represents an observation point. The unit of measure, millibars or inches, is based on the UOM option for pressure.

Tab Created by: This tab is visible if there is more than one storm observation

Tab Close Allowed: No, however, this tab can be deselected in General Options.

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's image as graphic of PDF via email image as shown on page 156..

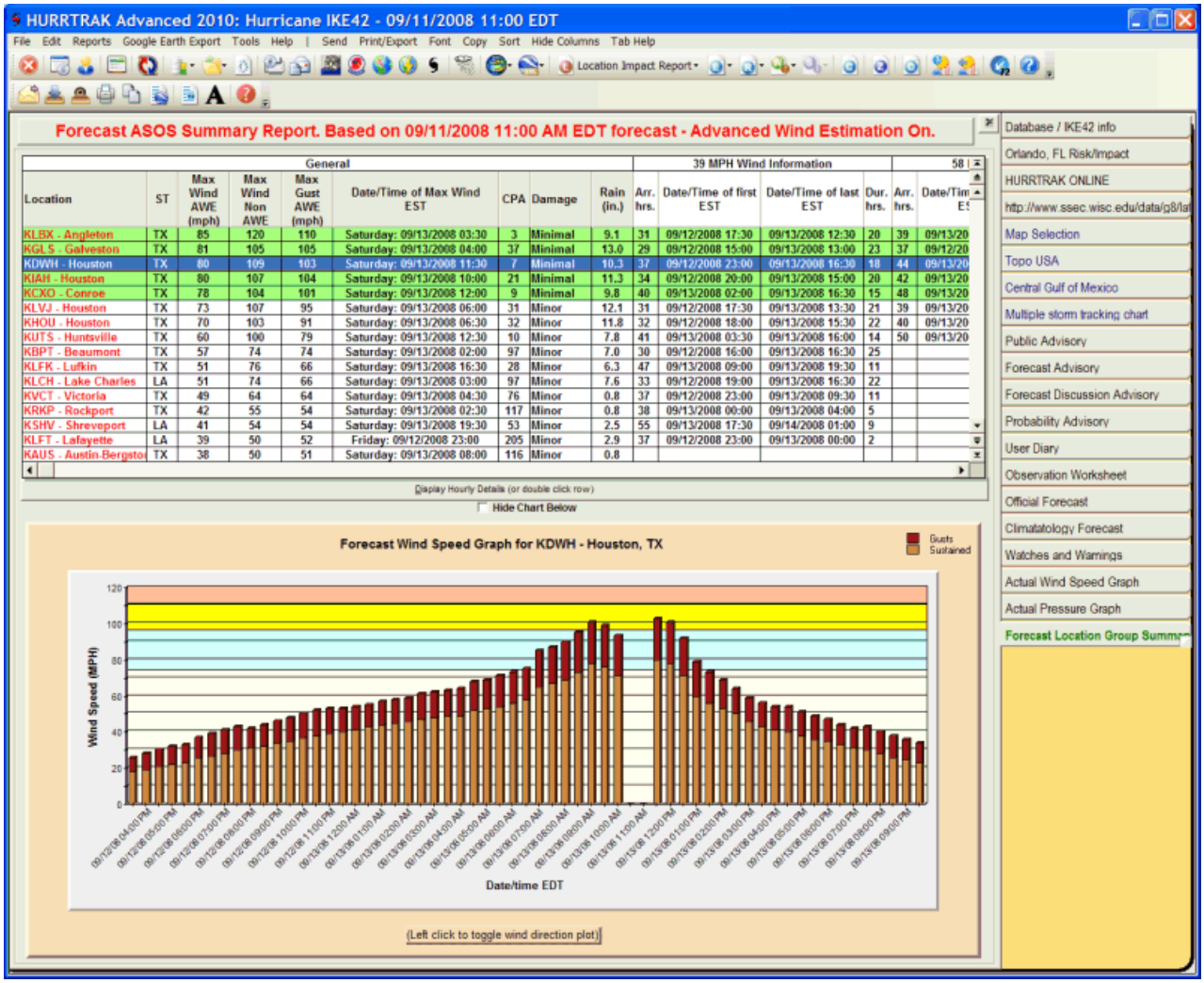
Print - Prints a black/white image of the graph to the windows printer.

Save Image - Saves the image to a BMP file or adds image to Email Outbox.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

TIPS: Pointing and clicking on an observation point will display the date, time and pressure data for that point.

Location Group Summary Impact Report Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Sort Hide Columns Tab Help
Location Impact Report
Forecast ASOS Summary Report. Based on 09/11/2008 11:00 AM EDT forecast - Advanced Wind Estimation On.
General
39 MPH Wind Information
Location ST Max Wind AWE (mph) Max Wind Non AWE Max Gust AWE (mph) Date/Time of Max Wind EST CPA Damage Rain (in.) Arr. hrs. Date/Time of first EST Date/Time of last EST Dur. hrs. Arr. hrs. Date/Time EST
KLBX - Angleton TX 85 120 110 Saturday: 09/13/2008 03:30 3 Minimal 9.1 31 09/12/2008 17:30 09/13/2008 12:30 20 39 09/13/20
KGLS - Galveston TX 81 105 105 Saturday: 09/13/2008 04:00 37 Minimal 13.0 29 09/12/2008 15:00 09/13/2008 13:00 23 37 09/12/20
KDWH - Houston TX 80 109 103 Saturday: 09/13/2008 11:30 7 Minimal 10.3 37 09/12/2008 23:00 09/13/2008 16:30 18 44 09/13/20
KIAH - Houston TX 80 107 104 Saturday: 09/13/2008 10:00 21 Minimal 11.3 34 09/12/2008 20:00 09/13/2008 15:00 20 42 09/13/20
KCXO - Conroe TX 78 104 101 Saturday: 09/13/2008 12:00 9 Minimal 9.8 40 09/13/2008 02:00 09/13/2008 16:30 15 48 09/13/20
KLVJ - Houston TX 73 107 95 Saturday: 09/13/2008 06:00 31 Minor 12.1 31 09/12/2008 17:30 09/13/2008 13:30 21 39 09/13/20
KHOU - Houston TX 70 103 91 Saturday: 09/13/2008 06:30 32 Minor 11.8 32 09/12/2008 18:00 09/13/2008 15:30 22 40 09/13/20
KUTS - Huntsville TX 60 100 79 Saturday: 09/13/2008 12:30 10 Minor 7.8 41 09/13/2008 03:30 09/13/2008 16:00 14 50 09/13/20
KBPT - Beaumont TX 57 74 74 Saturday: 09/13/2008 02:00 97 Minor 7.0 30 09/12/2008 16:00 09/13/2008 16:30 25
KLFK - Lufkin TX 51 76 66 Saturday: 09/13/2008 16:30 28 Minor 6.3 47 09/13/2008 09:00 09/13/2008 19:30 11
KLCH - Lake Charles LA 51 74 66 Saturday: 09/13/2008 03:00 97 Minor 7.6 33 09/12/2008 19:00 09/13/2008 16:30 22
KVCT - Victoria TX 49 64 64 Saturday: 09/13/2008 04:30 76 Minor 0.8 37 09/12/2008 23:00 09/13/2008 09:30 11
KRKP - Rockport TX 42 55 54 Saturday: 09/13/2008 02:30 117 Minor 0.8 38 09/13/2008 00:00 09/13/2008 04:00 5
KSHV - Shreveport LA 41 54 54 Saturday: 09/13/2008 19:30 53 Minor 2.5 55 09/13/2008 17:30 09/14/2008 01:00 9
KLFT - Lafayette LA 39 50 52 Friday: 09/12/2008 23:00 205 Minor 2.9 37 09/12/2008 23:00 09/13/2008 00:00 2
KAUS - Austin-Bergsto TX 38 50 51 Saturday: 09/13/2008 08:00 116 Minor 0.8
Display Hourly Details (or double click row)
Hide Chart Below
Forecast Wind Speed Graph for KDWH - Houston, TX
Gusts
Sustained
Wind Speed (MPH)
Date/time EDT
(Left click to toggle wind direction plot)
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
http://www.ssec.wisc.edu/data/g8/la
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph
Forecast Location Group Summ

Description: This tab displays the forecast or actual impact summary report for the specified location group. It is generated by examining every location in the group and determining the forecast wind impact to that location. The report shows the location name, state, maximum sustained wind speed expected, maximum wind gusts, day/date/time of max sustained wind, closest point of approach (CPA), damage estimate, forecast 3 day rainfall, and the arrival time, first time, last time and duration of 34, 50 and 64 knot winds. See National Hurricane Center wind radii considerations on page 308 for more information on the limitations of forecast wind radii. Locations that have been analyzed using Advanced Wind Estimation are indicated by their location name in red and in the title of the report, as well as including an additional column showing the maximum non-AWE wind. See Advanced Wind Estimation in the appendix for more information.

Tab Created by: Selecting menu item Reports - Location Wind Profile (Forecast or Actual).

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions

Send - Sends the report via Email either as an HTML or PDF attachment or imbedded text as shown on page 156.

Print

Save to Email Outbox - Saves the report portion to the Email outbox in pdf format.
Print Preview - Previews the printed output on your screen.
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.
Export to SHAPE file – Exports the report to a point SHAPE file format. The user will be prompted to enter the file name to save.
Export report data to Google Earth – Exports the report to a point type KML file and then opens Google Earth to view this data.
Export report data to Google Earth with hourly details – Exports the report data with hourly details to a point type KML file and then opens Google Earth to view this data.
Print/Export "Executive Style Report" – The option will either Print, Export to HTML, or save as a PDF a report which has been reformatted in a non-tabular fashion. See page 174 for an example of this report.

Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.
Sort - Allows the user to sort on any column.
Hide Columns - Allows the user to selectively hide certain columns.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Other:

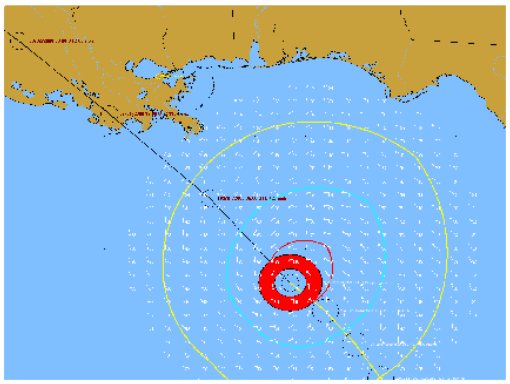
Display Hourly Details - This is selected by double-clicking on a location (row) or highlighting a row and selecting the "display hourly details" button. The location's hourly detail information will then be displayed on the detailed location hourly report tab, as shown on page 145.
Hide Chart Below – This checkbox will hide the wind speed / direction chart and leave more room for the report data.

Tips:

- The location report rows are color-coded, based on the maximum wind speed.
- Moving from one row to another will display that locations wind graph information
- Left clicking on the graph will toggle the wind direction plot
- Moving you mouse over a point on the graph will display more information on that observation

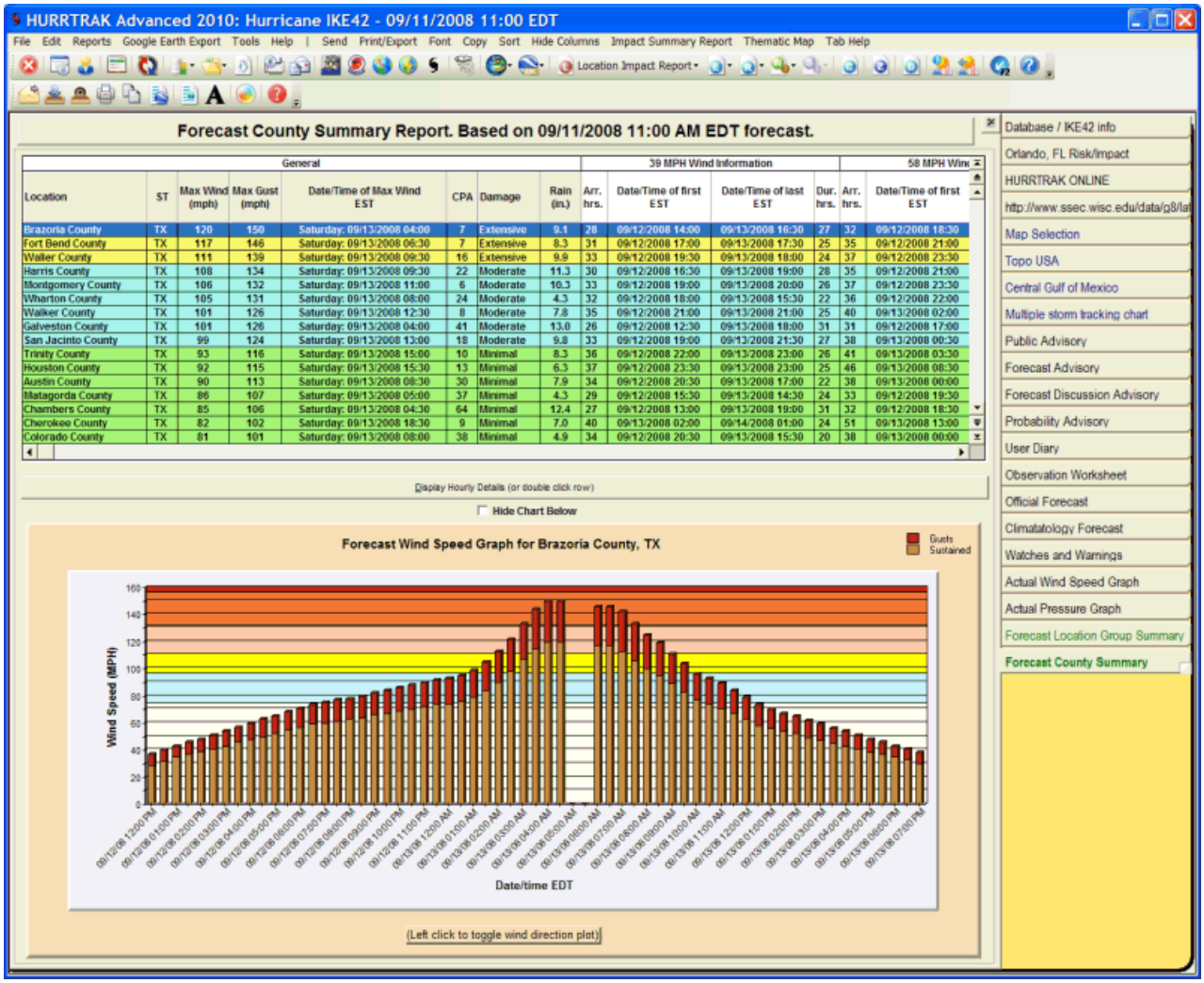
Sample “Executive Style” Impact Report

This report is generated from the Print/Export option while viewing a location, county or zip code summary report. It can be emailed, printed, saved as a PDF, or exported to HTML.



Hurricane GUSTAV Summary Update	Sunday 08/31/2008 21:00 UTC Advisory 29
Current NHC Forecast Predictions	
Maximum Sustained Winds / storm Category:	115 MPH / Category 3
Forward motion:	16 knots towards the Northwest
Hurricane Force winds extend from the center:	55 nautical miles
Tropical Storm winds extend from the center:	190 nautical miles
Minimum Pressure:	957 MB
Storm Position:	26.4N, 87.3W
Estimated Coastal Strike County/Parish:	Terrebonne, Louisiana Terrebonne, Louisiana
Grand Isle, LA	
Estimated Time of First Tropical Storm force winds:	Monday 09/01/2008 06:30 AM
Duration of Tropical Storm force winds:	19 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	100 MPH / 130 MPH
Estimated time of maximum winds:	Monday 09/01/2008 02:00 PM
Duration of Hurricane Force Winds:	4 hours
Estimated closest point of approach:	25 miles
Forecast Rainfall (3 day total):	13.3 inches
Wind Probabilities (34, 50, 64 knots):	98% 91% 59%
Surge Probabilities (5', 10', 15', 20') 1 nm. Northwest	60% 9% 0% 0%
Morgan City, LA	
Estimated Time of First Tropical Storm force winds:	Monday 09/01/2008 03:30 PM
Duration of Tropical Storm force winds:	9 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	71 MPH / 93 MPH
Estimated time of maximum winds:	Monday 09/01/2008 07:00 PM
Duration of Hurricane Force Winds:	N/A
Estimated closest point of approach:	4 miles
Forecast Rainfall (3 day total):	14.5 inches
Wind Probabilities (34, 50, 64 knots):	97% 83% 58%
Surge Probabilities (5', 10', 15', 20') 14 nm. Southwest	23% 4% 0% 0%
Mouth of the Mississippi, LA	

County Summary Report Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Sort Hide Columns Impact Summary Report Thematic Map Tab Help
Location Impact Report
Forecast County Summary Report. Based on 09/11/2008 11:00 AM EDT forecast.
General
39 MPH Wind Information
58 MPH Wind
Location ST Max Wind (mph) Max Gust (mph) Date/Time of Max Wind EST CPA Damage Rain (in.) Arr. hrs. Date/Time of first EST Date/Time of last EST Dur. hrs. Arr. hrs. Date/Time of first EST
Brazoria County TX 120 150 Saturday: 09/13/2008 04:00 7 Extensive 9.1 28 09/12/2008 14:00 09/13/2008 16:30 27 32 09/12/2008 18:30
Fort Bend County TX 117 146 Saturday: 09/13/2008 06:30 7 Extensive 8.3 31 09/12/2008 17:00 09/13/2008 17:30 25 35 09/12/2008 21:00
Waller County TX 111 139 Saturday: 09/13/2008 09:30 16 Extensive 9.9 33 09/12/2008 19:30 09/13/2008 18:00 24 37 09/12/2008 23:30
Harris County TX 108 134 Saturday: 09/13/2008 09:30 22 Moderate 11.3 30 09/12/2008 16:30 09/13/2008 19:00 28 35 09/12/2008 21:00
Montgomery County TX 106 132 Saturday: 09/13/2008 11:00 6 Moderate 10.3 33 09/12/2008 19:00 09/13/2008 20:00 26 37 09/12/2008 23:30
Wharton County TX 105 131 Saturday: 09/13/2008 08:00 24 Moderate 4.3 32 09/12/2008 18:00 09/13/2008 15:30 22 36 09/12/2008 22:00
Walker County TX 101 126 Saturday: 09/13/2008 12:30 8 Moderate 7.8 35 09/12/2008 21:00 09/13/2008 21:00 25 40 09/13/2008 02:00
Galveston County TX 101 126 Saturday: 09/13/2008 04:00 41 Moderate 13.0 26 09/12/2008 12:30 09/13/2008 18:00 31 31 09/12/2008 17:00
San Jacinto County TX 99 124 Saturday: 09/13/2008 13:00 18 Moderate 9.8 33 09/12/2008 19:00 09/13/2008 21:30 27 38 09/13/2008 00:30
Trinity County TX 93 116 Saturday: 09/13/2008 15:00 10 Minimal 8.3 36 09/12/2008 22:00 09/13/2008 23:00 26 41 09/13/2008 03:30
Houston County TX 92 115 Saturday: 09/13/2008 15:30 13 Minimal 6.3 37 09/12/2008 23:30 09/13/2008 23:00 25 46 09/13/2008 08:30
Austin County TX 90 113 Saturday: 09/13/2008 08:30 30 Minimal 7.9 34 09/12/2008 20:30 09/13/2008 17:00 22 38 09/13/2008 00:00
Matagorda County TX 86 107 Saturday: 09/13/2008 05:00 37 Minimal 4.3 29 09/12/2008 15:30 09/13/2008 14:30 24 33 09/12/2008 19:30
Chambers County TX 85 106 Saturday: 09/13/2008 04:30 64 Minimal 12.4 27 09/12/2008 13:00 09/13/2008 19:00 31 32 09/12/2008 18:30
Cherokee County TX 82 102 Saturday: 09/13/2008 18:30 9 Minimal 7.0 40 09/13/2008 02:00 09/14/2008 01:00 24 51 09/13/2008 13:00
Colorado County TX 81 101 Saturday: 09/13/2008 08:00 38 Minimal 4.9 34 09/12/2008 20:30 09/13/2008 15:30 20 38 09/13/2008 00:00
Display Hourly Details (or double click row)
Hide Chart Below
Forecast Wind Speed Graph for Brazoria County, TX
Gusts
Sustained
Wind Speed (MPH)
Date/time EDT
(Left click to toggle wind direction plot)
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph
Forecast Location Group Summary
Forecast County Summary

Description: This tab displays the forecast or actual impact summary report for the counties specified in Impact Analysis Option. This report is generated by examining every county location and determining the wind impact to that location. The report shows the county name, state, maximum wind speed expected, day/date/time of maximum sustained winds / gusts, closest point of approach (CPA) and the arrival time, first time, last time and duration of 34, 50 and 64 knot winds. See National Hurricane Center wind radii considerations for more information on the limitations of forecast wind radii. If advanced wind estimation is on, it will be indicated in the report header.

Tab Created by: Selecting menu item Reports - County Wind Profile Analysis (Forecast or Actual).

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions

Send - Sends the report via Email either as an HTML or PDF attachment or imbedded text as shown on page 156.

Print

Save to Email Outbox - Saves the report portion to the Email outbox in pdf format.

Print Preview - Previews the printed output on your screen.

Direct to Printer - Prints the output directly to the designated printer.

HURRTRAK & Global Tracker Users Guide ©1992-2012, PC Weather Products, Inc.

Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.
Export to SHAPE file – Exports the report to a point SHAPE file format. The user will be prompted to enter the file name to save.
Export report data to Google Earth – Exports the report to a point type KML file and then opens Google Earth to view this data.
Export report data to Google Earth with hourly details – Exports the report data with hourly details to a point type KML file and then opens Google Earth to view this data.
Print/Export "Executive Style Report" – The option will either Print, Export to HTML, or save as a PDF a report which has been reformatted in a non-tabular fashion. See page 174 for an example of this report.

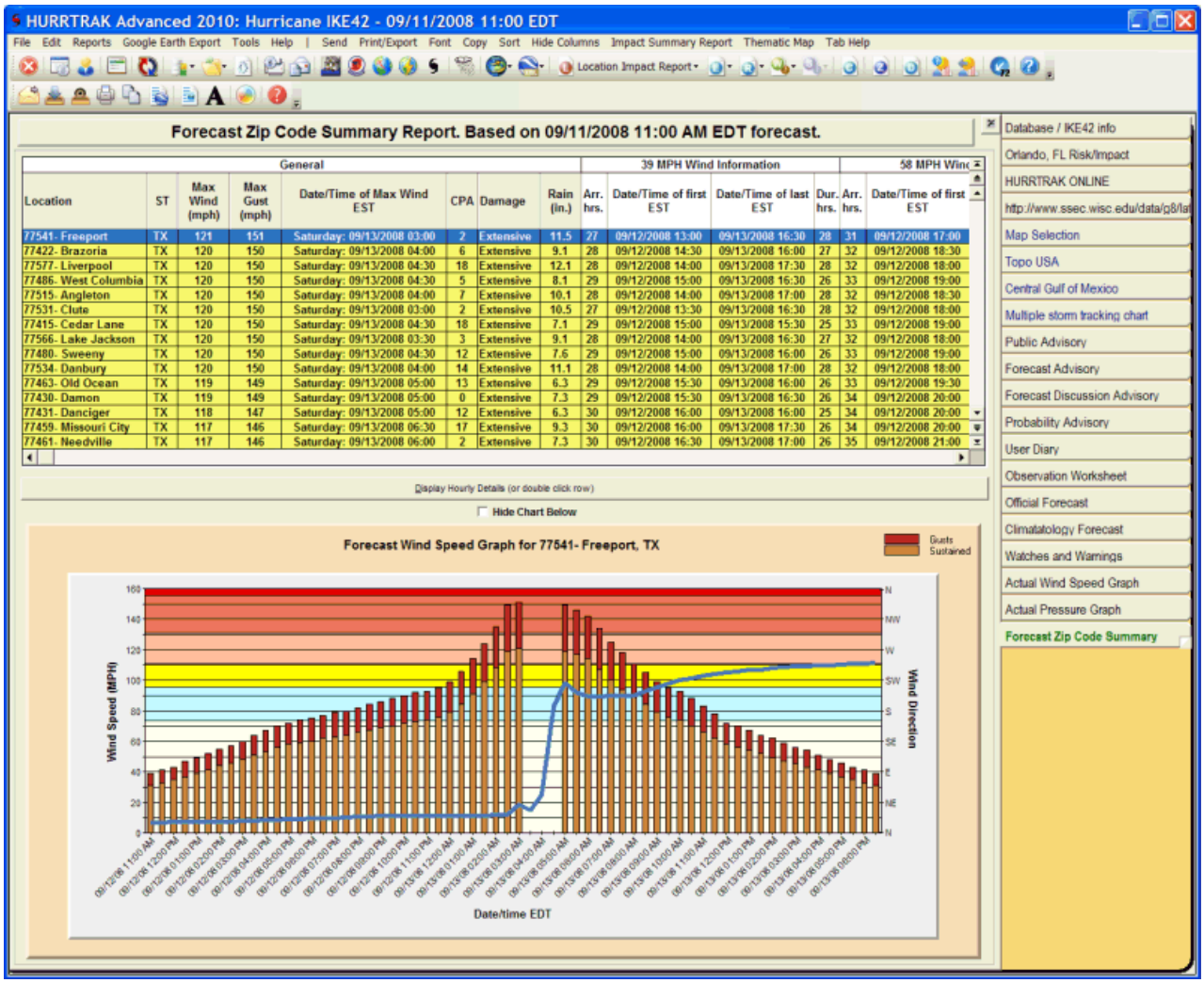
Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.
Sort - Allows the user to sort on any column.
Hide Columns - Allows the user to selectively hide certain columns.
Impact Summary – See page 147.
Thematic Map – See page 153.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Other:
Display Hourly Details - This is selected by double-clicking on a location (row) or highlighting a row and selecting the "display hourly details" button. The location's hourly detail information will then be displayed on the detailed location hourly report tab, as shown on page 145.
Hide Chart Below – This checkbox will hide the wind speed / direction chart and leave more room for the report data.

Tips:
- The location report rows are color-coded, based on the maximum wind speed.
- Moving from one row to another will display that locations wind graph information
- Left clicking on the graph will toggle the wind direction plot
- Moving you mouse over a point on the graph will display more information on that observation

Zip Code Summary Report Tab


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Sort Hide Columns Impact Summary Report Thematic Map Tab Help
Location Impact Report
Forecast Zip Code Summary Report. Based on 09/11/2008 11:00 AM EDT forecast.
General
39 MPH Wind Information
58 MPH Wind
Location | ST | Max Wind (mph) | Max Gust (mph) | Date/Time of Max Wind EST | CPA | Damage | Rain (in.) | Arr. hrs. | Date/Time of first EST | Date/Time of last EST | Dur. hrs. | Arr. hrs. | Date/Time of first EST
77541- Freeport | TX | 121 | 151 | Saturday: 09/13/2008 03:00 | 2 | Extensive | 11.5 | 27 | 09/12/2008 13:00 | 09/13/2008 16:30 | 28 | 31 | 09/12/2008 17:00
77422- Brazoria | TX | 120 | 150 | Saturday: 09/13/2008 04:00 | 6 | Extensive | 9.1 | 28 | 09/12/2008 14:30 | 09/13/2008 16:00 | 27 | 32 | 09/12/2008 18:30
77577- Liverpool | TX | 120 | 150 | Saturday: 09/13/2008 04:30 | 18 | Extensive | 12.1 | 28 | 09/12/2008 14:00 | 09/13/2008 17:30 | 28 | 32 | 09/12/2008 18:00
77486- West Columbia | TX | 120 | 150 | Saturday: 09/13/2008 04:30 | 5 | Extensive | 8.1 | 29 | 09/12/2008 15:00 | 09/13/2008 16:30 | 26 | 33 | 09/12/2008 19:00
77515- Angleton | TX | 120 | 150 | Saturday: 09/13/2008 04:00 | 7 | Extensive | 10.1 | 28 | 09/12/2008 14:00 | 09/13/2008 17:00 | 28 | 32 | 09/12/2008 18:30
77531- Clute | TX | 120 | 150 | Saturday: 09/13/2008 03:00 | 2 | Extensive | 10.5 | 27 | 09/12/2008 13:30 | 09/13/2008 16:30 | 28 | 32 | 09/12/2008 18:00
77415- Cedar Lane | TX | 120 | 150 | Saturday: 09/13/2008 04:30 | 18 | Extensive | 7.1 | 29 | 09/12/2008 15:00 | 09/13/2008 15:30 | 25 | 33 | 09/12/2008 19:00
77566- Lake Jackson | TX | 120 | 150 | Saturday: 09/13/2008 03:30 | 3 | Extensive | 9.1 | 28 | 09/12/2008 14:00 | 09/13/2008 16:30 | 27 | 32 | 09/12/2008 18:00
77480- Sweeny | TX | 120 | 150 | Saturday: 09/13/2008 04:30 | 12 | Extensive | 7.6 | 29 | 09/12/2008 15:00 | 09/13/2008 16:00 | 26 | 33 | 09/12/2008 19:00
77534- Danbury | TX | 120 | 150 | Saturday: 09/13/2008 04:00 | 14 | Extensive | 11.1 | 28 | 09/12/2008 14:00 | 09/13/2008 17:00 | 28 | 32 | 09/12/2008 18:00
77463- Old Ocean | TX | 119 | 149 | Saturday: 09/13/2008 05:00 | 13 | Extensive | 6.3 | 29 | 09/12/2008 15:30 | 09/13/2008 16:00 | 26 | 33 | 09/12/2008 19:30
77430- Damon | TX | 119 | 149 | Saturday: 09/13/2008 05:00 | 0 | Extensive | 7.3 | 29 | 09/12/2008 15:30 | 09/13/2008 16:30 | 26 | 34 | 09/12/2008 20:00
77431- Danciger | TX | 118 | 147 | Saturday: 09/13/2008 05:00 | 12 | Extensive | 6.3 | 30 | 09/12/2008 16:00 | 09/13/2008 16:00 | 25 | 34 | 09/12/2008 20:00
77459- Missouri City | TX | 117 | 146 | Saturday: 09/13/2008 06:30 | 17 | Extensive | 9.3 | 30 | 09/12/2008 16:00 | 09/13/2008 17:30 | 26 | 34 | 09/12/2008 20:00
77461- Needville | TX | 117 | 146 | Saturday: 09/13/2008 06:00 | 2 | Extensive | 7.3 | 30 | 09/12/2008 16:30 | 09/13/2008 17:00 | 26 | 35 | 09/12/2008 21:00
Display Hourly Details (or double click row)
Hide Chart Below
Forecast Wind Speed Graph for 77541- Freeport, TX
Gusts
Sustained
Wind Speed (MPH)
Wind Direction
Date/time EDT
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
http://www.ssec.wisc.edu/data/g8/la
Map Selection
Topo USA
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph
Forecast Zip Code Summary

Description: This tab displays the forecast or actual impact summary report for the zip codes specified in Impact Analysis Option. This report is generated by examining every zip code and determining the wind impact to that area. The report shows the zip code, city name, state, maximum wind speed expected, day/date/time of maximum sustained winds / gusts, closest point of approach (CPA) and the arrival time, first time, last time and duration of 34, 50 and 64 knot winds. See NHC wind radii considerations for more information on the limitations of forecast wind radii. The zip codes that are examined are determined by the settings in Impact Analysis Options. If advanced wind estimation (AWE) is on, it will be indicated in the report header.

Tab Created by: Selecting menu item Reports - Zip Code Wind Profile Analysis (Forecast or Actual).

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions
Send - Sends the report via Email either as an HTML or PDF attachment or imbedded text as shown on page 156.

Print
Save to Email Outbox - Saves the report portion to the Email outbox in pdf format.

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Print Preview - Previews the printed output on your screen.
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.
Export to SHAPE file – Exports the report to a point SHAPE file format. The user will be prompted to enter the file name to save.
Export report data to Google Earth – Exports the report to a point type KML file and then opens Google Earth to view this data.
Export report data to Google Earth with hourly details – Exports the report data with hourly details to a point type KML file and then opens Google Earth to view this data.
Print/Export "Executive Style Report" – The option will either Print, Export to HTML, or save as a PDF a report which has been reformatted in a non-tabular fashion. See page 174 for an example of this report.

Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.
Sort - Allows the user to sort on any column.
Hide Columns - Allows the user to selectively hide certain columns.
Impact Summary – See page 147.
Thematic Map – See page 153.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

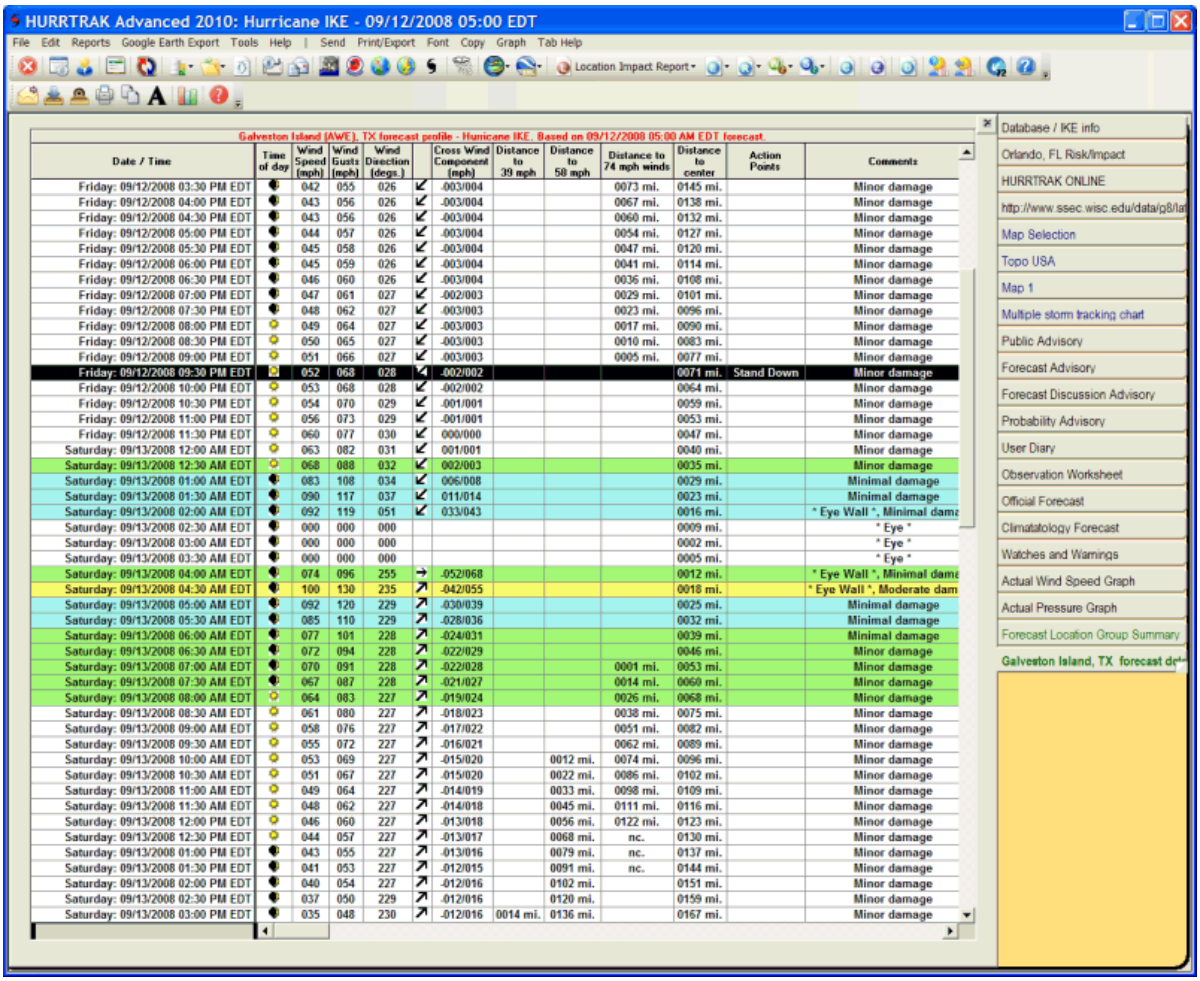
Other:

Display Hourly Details - This is selected by double-clicking on a location (row) or highlighting a row and selecting the "display hourly details" button. The location's hourly detail information will then be displayed on the detailed location hourly report tab, as shown on page 145.
Hide Chart Below – This checkbox will hide the wind speed / direction chart and leave more room for the report data.

Tips:

- The location report rows are color-coded, based on the maximum wind speed.
- Moving from one row to another will display that locations wind graph information
- Left clicking on the graph will toggle the wind direction plot
- Moving you mouse over a point on the graph will display more information on that observation

Detailed Location/County/Zip Hourly Report Tab


HURRTRAK Advanced 2010: Hurricane IKE - 09/12/2008 05:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Graph Tab Help
Location Impact Report
Galveston Island (AWE), TX forecast profile - Hurricane IKE. Based on 09/12/2008 05:00 AM EDT forecast.
Database / IKE info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
http://www.ssec.wisc.edu/data/g8/la
Map Selection
Topo USA
Map 1
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph
Forecast Location Group Summary
Galveston Island, TX forecast de

Date / Time	Time of day	Wind Speed (mph)	Wind Gusts (mph)	Wind Direction (degs.)		Cross Wind Component (mph)	Distance to 39 mph	Distance to 58 mph	Distance to 74 mph winds	Distance to center	Action Points	Comments
Friday: 09/12/2008 03:30 PM EDT		042	055	026		-003/004			0073 mi.	0145 mi.		Minor damage
Friday: 09/12/2008 04:00 PM EDT		043	056	026		-003/004			0067 mi.	0138 mi.		Minor damage
Friday: 09/12/2008 04:30 PM EDT		043	056	026		-003/004			0060 mi.	0132 mi.		Minor damage
Friday: 09/12/2008 05:00 PM EDT		044	057	026		-003/004			0054 mi.	0127 mi.		Minor damage
Friday: 09/12/2008 05:30 PM EDT		045	058	026		-003/004			0047 mi.	0120 mi.		Minor damage
Friday: 09/12/2008 06:00 PM EDT		045	059	026		-003/004			0041 mi.	0114 mi.		Minor damage
Friday: 09/12/2008 06:30 PM EDT		046	060	026		-003/004			0036 mi.	0108 mi.		Minor damage
Friday: 09/12/2008 07:00 PM EDT		047	061	027		-002/003			0029 mi.	0101 mi.		Minor damage
Friday: 09/12/2008 07:30 PM EDT		048	062	027		-003/003			0023 mi.	0096 mi.		Minor damage
Friday: 09/12/2008 08:00 PM EDT		049	064	027		-003/003			0017 mi.	0090 mi.		Minor damage
Friday: 09/12/2008 08:30 PM EDT		050	065	027		-003/003			0010 mi.	0083 mi.		Minor damage
Friday: 09/12/2008 09:00 PM EDT		051	066	027		-003/003			0005 mi.	0077 mi.		Minor damage
Friday: 09/12/2008 09:30 PM EDT		052	068	028		-002/002				0071 mi.	Stand Down	Minor damage
Friday: 09/12/2008 10:00 PM EDT		053	068	028		-002/002				0064 mi.		Minor damage
Friday: 09/12/2008 10:30 PM EDT		054	070	029		-001/001				0059 mi.		Minor damage
Friday: 09/12/2008 11:00 PM EDT		056	073	029		-001/001				0053 mi.		Minor damage
Friday: 09/12/2008 11:30 PM EDT		060	077	030		000/000				0047 mi.		Minor damage
Saturday: 09/13/2008 12:00 AM EDT		063	082	031		001/001				0040 mi.		Minor damage
Saturday: 09/13/2008 12:30 AM EDT		068	088	032		002/003				0035 mi.		Minor damage
Saturday: 09/13/2008 01:00 AM EDT		083	108	034		006/008				0029 mi.		Minimal damage
Saturday: 09/13/2008 01:30 AM EDT		090	117	037		011/014				0023 mi.		Minimal damage
Saturday: 09/13/2008 02:00 AM EDT		092	119	051		033/043				0016 mi.		* Eye Wall *, Minimal dama
Saturday: 09/13/2008 02:30 AM EDT		000	000	000						0009 mi.		* Eye *
Saturday: 09/13/2008 03:00 AM EDT		000	000	000						0002 mi.		* Eye *
Saturday: 09/13/2008 03:30 AM EDT		000	000	000						0005 mi.		* Eye *
Saturday: 09/13/2008 04:00 AM EDT		074	096	255		-052/068				0012 mi.		* Eye Wall *, Minimal dama
Saturday: 09/13/2008 04:30 AM EDT		100	130	235		-042/055				0018 mi.		* Eye Wall *, Moderate dam
Saturday: 09/13/2008 05:00 AM EDT		092	120	229		-030/039				0025 mi.		Minimal damage
Saturday: 09/13/2008 05:30 AM EDT		085	110	229		-028/036				0032 mi.		Minimal damage
Saturday: 09/13/2008 06:00 AM EDT		077	101	228		-024/031				0039 mi.		Minimal damage
Saturday: 09/13/2008 06:30 AM EDT		072	094	228		-022/029				0046 mi.		Minor damage
Saturday: 09/13/2008 07:00 AM EDT		070	091	228		-022/028			0001 mi.	0053 mi.		Minor damage
Saturday: 09/13/2008 07:30 AM EDT		067	087	228		-021/027			0014 mi.	0060 mi.		Minor damage
Saturday: 09/13/2008 08:00 AM EDT		064	083	227		-019/024			0026 mi.	0068 mi.		Minor damage
Saturday: 09/13/2008 08:30 AM EDT		061	080	227		-018/023			0038 mi.	0075 mi.		Minor damage
Saturday: 09/13/2008 09:00 AM EDT		058	076	227		-017/022			0051 mi.	0082 mi.		Minor damage
Saturday: 09/13/2008 09:30 AM EDT		055	072	227		-016/021			0062 mi.	0089 mi.		Minor damage
Saturday: 09/13/2008 10:00 AM EDT		053	069	227		-015/020		0012 mi.	0074 mi.	0096 mi.		Minor damage
Saturday: 09/13/2008 10:30 AM EDT		051	067	227		-015/020		0022 mi.	0086 mi.	0102 mi.		Minor damage
Saturday: 09/13/2008 11:00 AM EDT		049	064	227		-014/019		0033 mi.	0098 mi.	0109 mi.		Minor damage
Saturday: 09/13/2008 11:30 AM EDT		048	062	227		-014/018		0045 mi.	0111 mi.	0116 mi.		Minor damage
Saturday: 09/13/2008 12:00 PM EDT		046	060	227		-013/018		0056 mi.	0122 mi.	0123 mi.		Minor damage
Saturday: 09/13/2008 12:30 PM EDT		044	057	227		-013/017		0068 mi.	nc.	0130 mi.		Minor damage
Saturday: 09/13/2008 01:00 PM EDT		043	055	227		-013/016		0079 mi.	nc.	0137 mi.		Minor damage
Saturday: 09/13/2008 01:30 PM EDT		041	053	227		-012/015		0091 mi.	nc.	0144 mi.		Minor damage
Saturday: 09/13/2008 02:00 PM EDT		040	054	227		-012/016		0102 mi.		0151 mi.		Minor damage
Saturday: 09/13/2008 02:30 PM EDT		037	050	229		-012/016		0120 mi.		0159 mi.		Minor damage
Saturday: 09/13/2008 03:00 PM EDT		035	048	230		-012/016	0014 mi.	0136 mi.		0167 mi.		Minor damage

Description: This tab displays half-hourly detail report for locations, counties and zip codes. When a location, *county* or zip code is selected, the system examines the actual storm characteristics for every hour of the storm's life, making a determination of how this location was affected at each hour. The result is a report indicating the sustained wind speed/gusts and wind direction conditions for this location throughout the period, along with any other pertinent information, such as astronomical tide height, cross wind values, distance from 34, 50, 64 knot wind areas and distance from center. The last column indicates whether the location was affected by the eye and/or eye wall. In addition, if the cross wind flow angle has been set for this location, the cross wind component is included. If advanced wind estimation (AWE) is on, it will be indicated in the report header.

Tab Created by: Selecting Display Hourly Details from the Location Group, County or Zip Code summary report.

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions

Send - Sends the report via Email either as an HTML attachment or imbedded text as shown on page 156.

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Print

Save to Email Outbox - Saves the report to the Email outbox in pdf format.
Print Preview - Previews the printed output on your screen.
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.

Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.
Graph

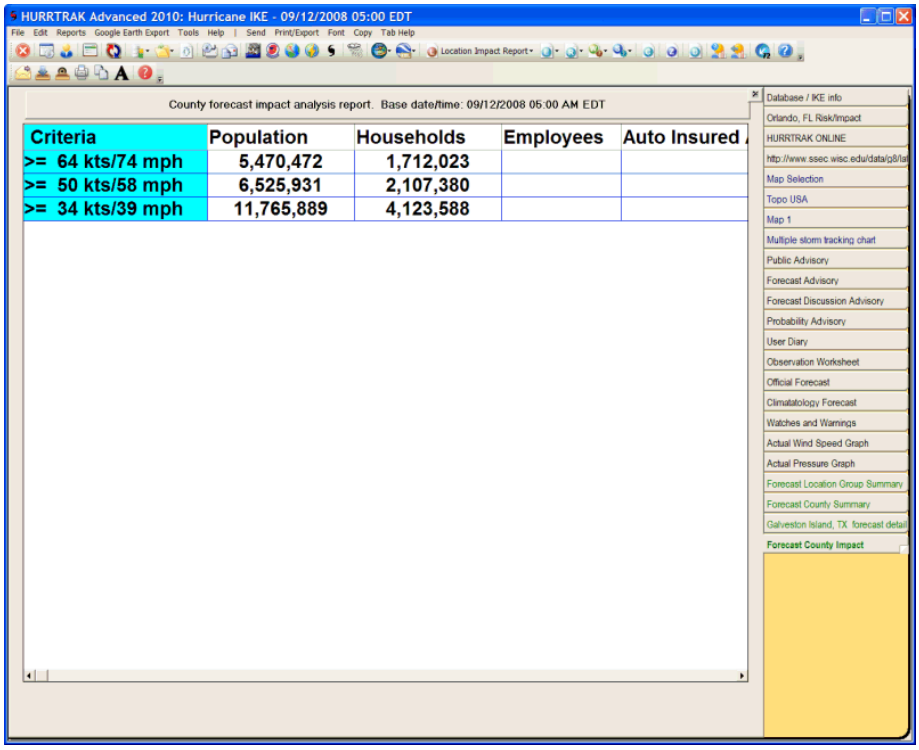
Graph Wind Profile – Displays a wind speed graph for the analyzed location (see page 151).
Graph Flood Profile (1 or 3 hour total) – Displays a flood index graph for the analyzed location. See page 152.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips:

- The report rows are color-coded, based on the wind speed for that time.
- Damage estimates are located in the comments column (last).
- Action points are shown in the next to last column is active
- Cross Wind Component is included if the cross wind has been defined for this location.

County/Zip Impact Analysis Report Tab



Description: This report is generated by examining every county's or zip code's forecast maximum wind speed and tallies the total population and number of households (county only) that are expected to be affected by a user-defined level of wind. The wind thresholds used in this report are set in the Impact Analysis Option. In addition to population and households(county only), this report will also total the optional user-defined fields. Up to 10 user-defined fields can be established (3 in EM/Pro) within the System Setup program.

Tab Created by: Selecting Impact Analysis from the County or Zip Code Summary Reports.

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions

Send - Sends the report via Email either as an HTML attachment, PDF, or imbedded text as shown on page 156.

Print

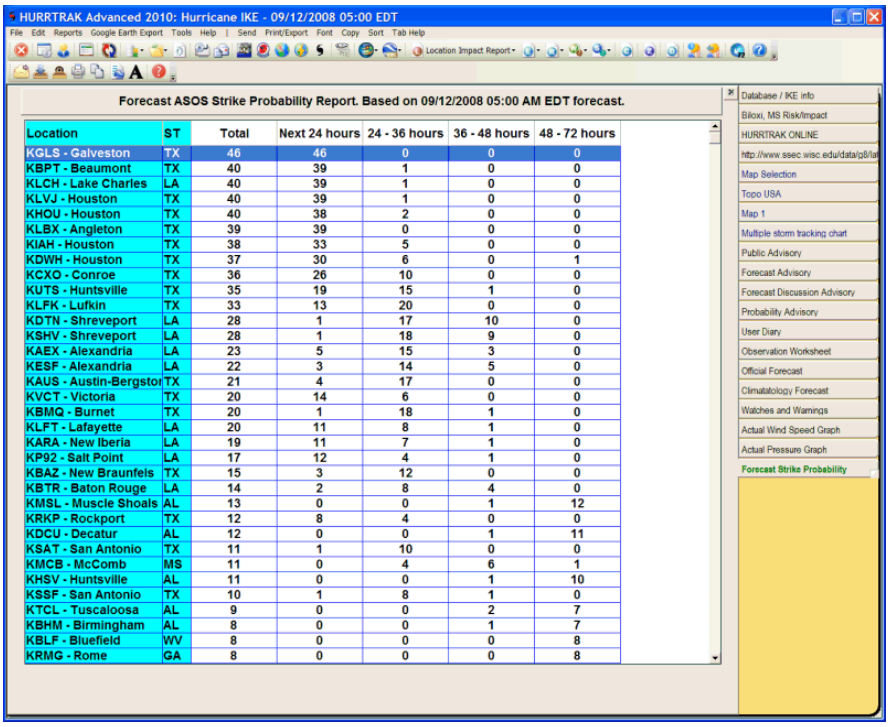
Save to Email Outbox – Saves report in PDF format to Email outbox.
Print Preview - Previews the printed output on your screen.
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.

Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips: The wind thresholds used in this report are set in the Impact Analysis Option.

Strike Probability Report Tab



Location	ST	Total	Next 24 hours	24 - 36 hours	36 - 48 hours	48 - 72 hours
KGLS - Galveston	TX	46	46	0	0	0
KBPT - Beaumont	TX	40	39	1	0	0
KLCH - Lake Charles	LA	40	39	1	0	0
KLVJ - Houston	TX	40	39	1	0	0
KHOU - Houston	TX	40	38	2	0	0
KLBX - Angleton	TX	39	39	0	0	0
KIAH - Houston	TX	38	33	5	0	0
KDWH - Houston	TX	37	30	6	0	1
KCXO - Conroe	TX	36	26	10	0	0
KUTS - Huntsville	TX	35	19	15	1	0
KLFK - Lufkin	TX	33	13	20	0	0
KDTN - Shreveport	LA	28	1	17	10	0
KSHV - Shreveport	LA	28	1	18	9	0
KAEX - Alexandria	LA	23	5	15	3	0
KESF - Alexandria	LA	22	3	14	5	0
KAUS - Austin-Bergstor	TX	21	4	17	0	0
KVCT - Victoria	TX	20	14	6	0	0
KBMQ - Burnet	TX	20	1	18	1	0
KLFT - Lafayette	LA	20	11	8	1	0
KARA - New Iberia	LA	19	11	7	1	0
KP92 - Salt Point	LA	17	12	4	1	0
KBAZ - New Braunfels	TX	15	3	12	0	0
KBTR - Baton Rouge	LA	14	2	8	4	0
KMSL - Muscle Shoals	AL	13	0	0	1	12
KRKP - Rockport	TX	12	8	4	0	0
KDCU - Decatur	AL	12	0	0	1	11
KSAT - San Antonio	TX	11	1	10	0	0
KMCB - McComb	MS	11	0	4	6	1
KHSV - Huntsville	AL	11	0	0	1	10
KSSF - San Antonio	TX	10	1	8	1	0
KTCL - Tuscaloosa	AL	9	0	0	2	7
KBHM - Birmingham	AL	8	0	0	1	7
KBLF - Bluefield	WV	8	0	0	0	8
KRMG - Rome	GA	8	0	0	0	8

Description: This tab displays a report showing each location and its total, next 24 hours, 24-36 hour period, 36-48 hour period and 48-72 hour period strike probabilities.

Tab Created by: Selecting menu item Reports - Location Strike Probabilities.

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions

Send - Sends the report via Email either as an HTML attachment, PDF, or imbedded text as shown on page 156.

Print

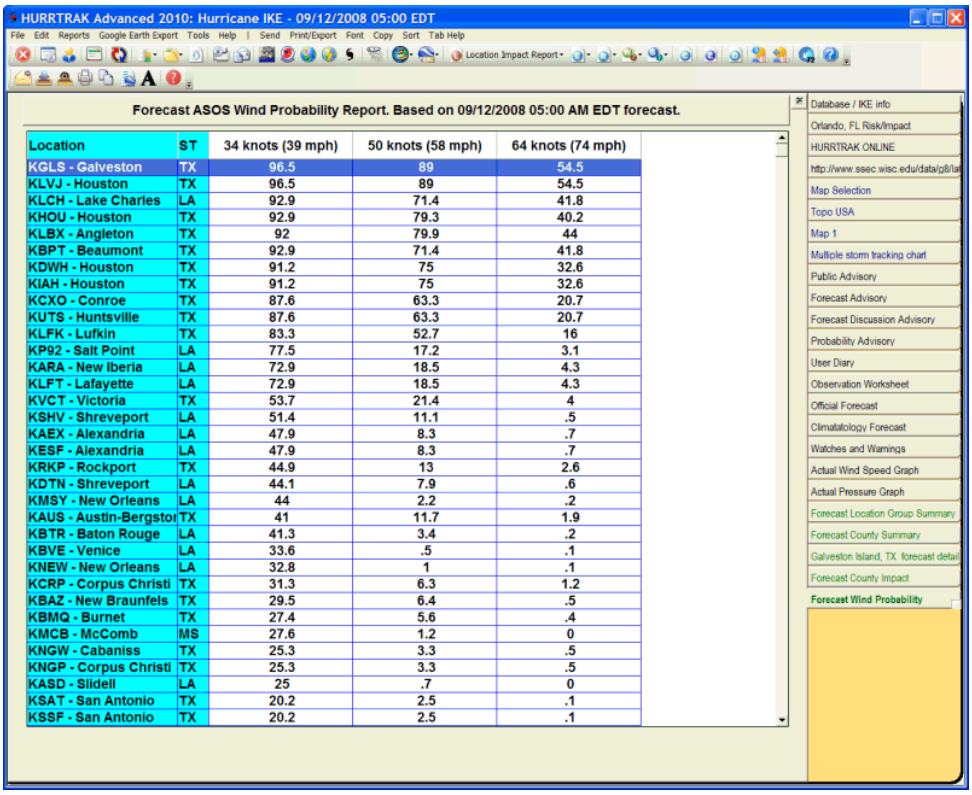
Save to Email Outbox – Saves report in PDF format to Email Outbox
Print Preview - Previews the printed output on your screen.
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.
Export report data to Google Earth – Exports the report to a point type KML file and then opens Google Earth to view this data.

Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.
Sort – Allows the user to sort on any column.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Tips: NHC no longer uses Strike Probabilities and it will likely be phased out in this system.

Wind Probability Report Tab



Location	ST	34 knots (39 mph)	50 knots (58 mph)	64 knots (74 mph)
KGLS - Galveston	TX	96.5	89	54.5
KLVJ - Houston	TX	96.5	89	54.5
KLCH - Lake Charles	LA	92.9	71.4	41.8
KHOU - Houston	TX	92.9	79.3	40.2
KLBX - Angleton	TX	92	79.9	44
KBPT - Beaumont	TX	92.9	71.4	41.8
KDWH - Houston	TX	91.2	75	32.6
KIAH - Houston	TX	91.2	75	32.6
KCXO - Conroe	TX	87.6	63.3	20.7
KUTS - Huntsville	TX	87.6	63.3	20.7
KLFK - Lufkin	TX	83.3	52.7	16
KP92 - Salt Point	LA	77.5	17.2	3.1
KARA - New Iberia	LA	72.9	18.5	4.3
KLFT - Lafayette	LA	72.9	18.5	4.3
KVCT - Victoria	TX	53.7	21.4	4
KSHV - Shreveport	LA	51.4	11.1	.5
KAEX - Alexandria	LA	47.9	8.3	.7
KESF - Alexandria	LA	47.9	8.3	.7
KRKP - Rockport	TX	44.9	13	2.6
KDTN - Shreveport	LA	44.1	7.9	.6
KMSY - New Orleans	LA	44	2.2	.2
KAUS - Austin-Bergstor	TX	41	11.7	1.9
KBTR - Baton Rouge	LA	41.3	3.4	.2
KBVE - Venice	LA	33.6	.5	.1
KNEW - New Orleans	LA	32.8	1	.1
KCRP - Corpus Christi	TX	31.3	6.3	1.2
KBAZ - New Braunfels	TX	29.5	6.4	.5
KBMQ - Burnet	TX	27.4	5.6	.4
KMCB - McComb	MS	27.6	1.2	0
KNGW - Cabaniss	TX	25.3	3.3	.5
KNGP - Corpus Christi	TX	25.3	3.3	.5
KASD - Slidell	LA	25	.7	0
KSAT - San Antonio	TX	20.2	2.5	.1
KSSF - San Antonio	TX	20.2	2.5	.1

Description: This tab displays a report showing each location and its total 34 knot, 50 knot and 64 knot wind probabilities.

Tab Created by: Selecting menu item Reports - Location Strike Probabilities.

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions

Send - Sends the report via Email either as an HTML attachment, PDF, or imbedded text as shown on page 156.

Print

Save to Email Outbox – Saves report in PDF format to Email Outbox
Print Preview - Previews the printed output on your screen
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.
Export report data to Google Earth – Exports the report to a point type KML file and then opens Google Earth to view this data.

Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.
Sort – Allows the user to sort on any column.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

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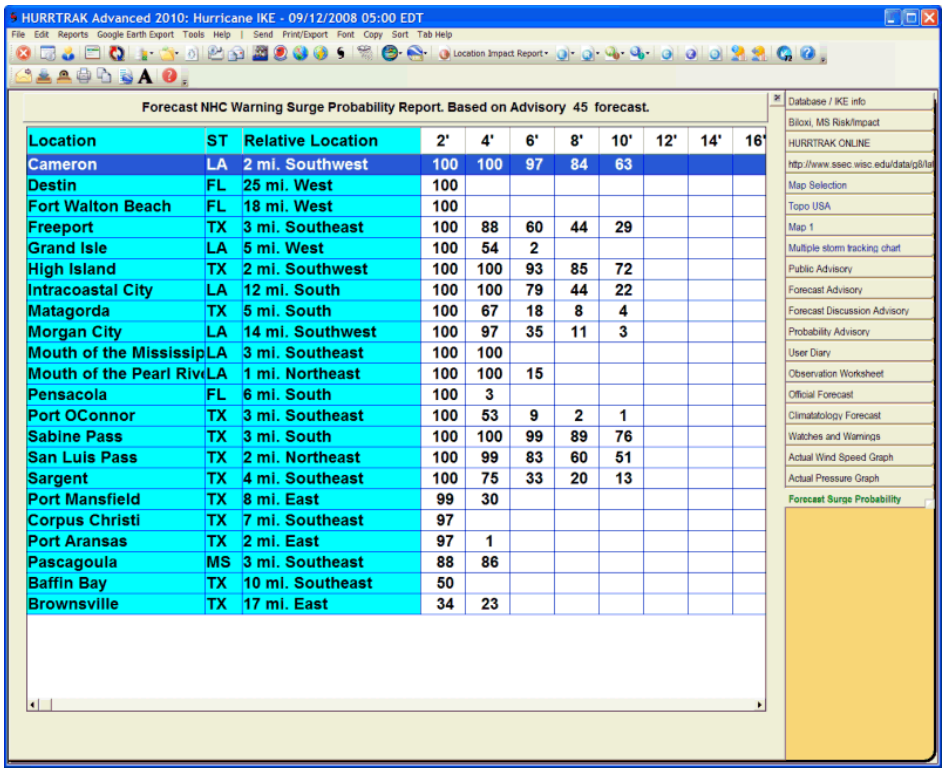
Surge Probability Report Tab



Location	ST	Relative Location	2'	4'	6'	8'	10'	12'	14'	16'
Cameron	LA	2 mi. Southwest	100	100	97	84	63			
Destin	FL	25 mi. West	100							
Fort Walton Beach	FL	18 mi. West	100							
Freeport	TX	3 mi. Southeast	100	88	60	44	29			
Grand Isle	LA	5 mi. West	100	54	2					
High Island	TX	2 mi. Southwest	100	100	93	85	72			
Intracoastal City	LA	12 mi. South	100	100	79	44	22			
Matagorda	TX	5 mi. South	100	67	18	8	4			
Morgan City	LA	14 mi. Southwest	100	97	35	11	3			
Mouth of the Mississip	LA	3 mi. Southeast	100	100						
Mouth of the Pearl Riv	LA	1 mi. Northeast	100	100	15					
Pensacola	FL	6 mi. South	100	3						
Port OConnor	TX	3 mi. Southeast	100	53	9	2	1			
Sabine Pass	TX	3 mi. South	100	100	99	89	76			
San Luis Pass	TX	2 mi. Northeast	100	99	83	60	51			
Sargent	TX	4 mi. Southeast	100	75	33	20	13			
Port Mansfield	TX	8 mi. East	99	30						
Corpus Christi	TX	7 mi. Southeast	97							
Port Aransas	TX	2 mi. East	97	1						
Pascagoula	MS	3 mi. Southeast	88	86						
Baffin Bay	TX	10 mi. Southeast	50							
Brownsville	TX	17 mi. East	34	23						

Description: This tab displays a report showing each location and the probability of a storm surge from 2' to 25' in 2' increments. It also shows the relative position to the reported location that this surge value is valid for.

Tab Created by: Selecting menu item Reports - Location Surge Probabilities.

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions

Send - Sends the report via Email either as an HTML attachment, PDF, or imbedded text as shown on page 156.

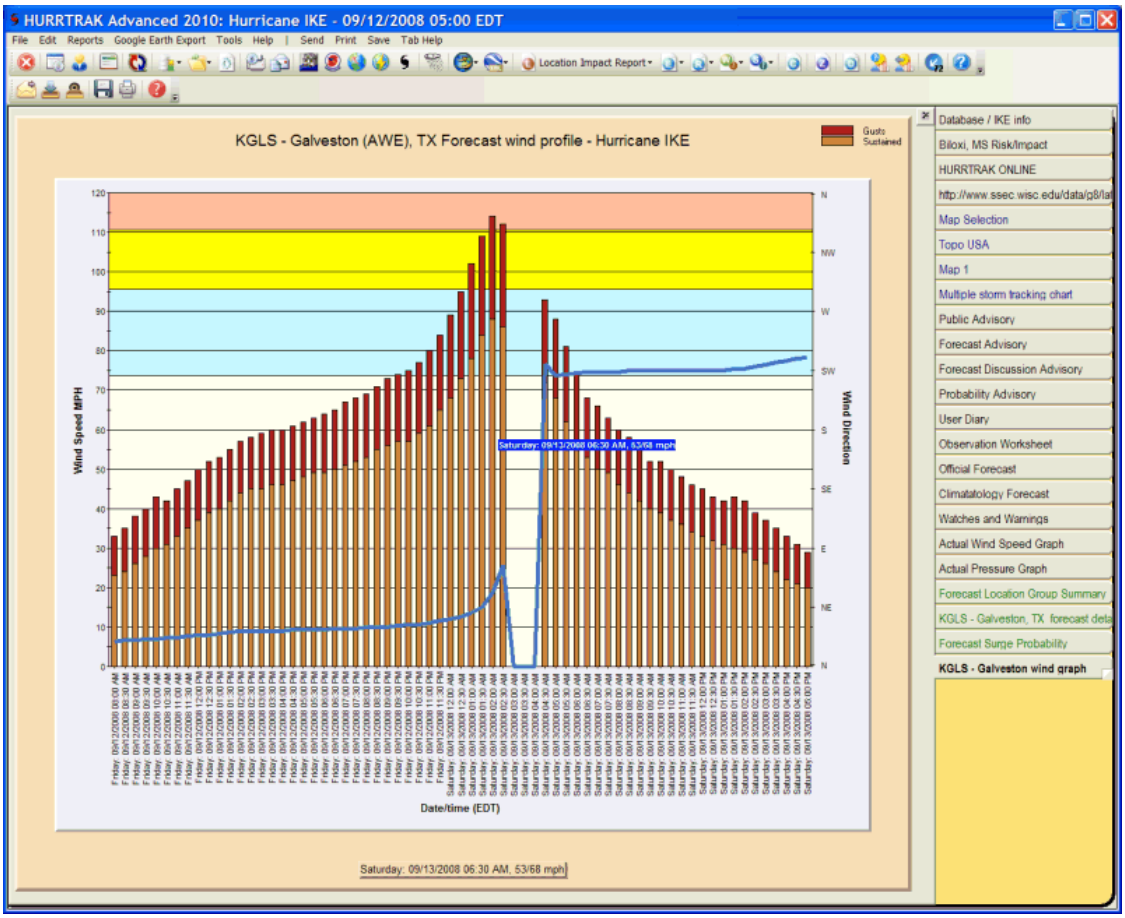
Print

Save to Email Outbox – Saves report in PDF format to Email Outbox
Print Preview - Previews the printed output on your screen
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - Exports the output in an HTML format.
Export to PDF – Exports the output in PDF format.
Export to Text – Exports the output to a comma delimited file.
Export to EXCEL – Exports the output and opens it in EXCEL format.
Export report data to Google Earth – Exports the report to a point type KML file and then opens Google Earth to view this data.

Font - Allows the user to modify the text font properties for this report.
Copy - Copies the contents of the report to the windows clipboard.
Sort – Allows the user to sort on any column.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information.

Detailed Location/County/Zip Wind Graph Tab



Description: This tab graphically displays the wind speed profile for the analyzed location when performing a location analysis. Wind speeds are not calculated until the location falls within the area of gale force winds. This is indicated by the sharp increase and decrease in winds on both sides of the curve

Tab Created by: Selecting Graph - Wind Profile from the Location/County/Zip Detail report tab.

Tab Close Allowed: Yes

Functions Available:
Menu:

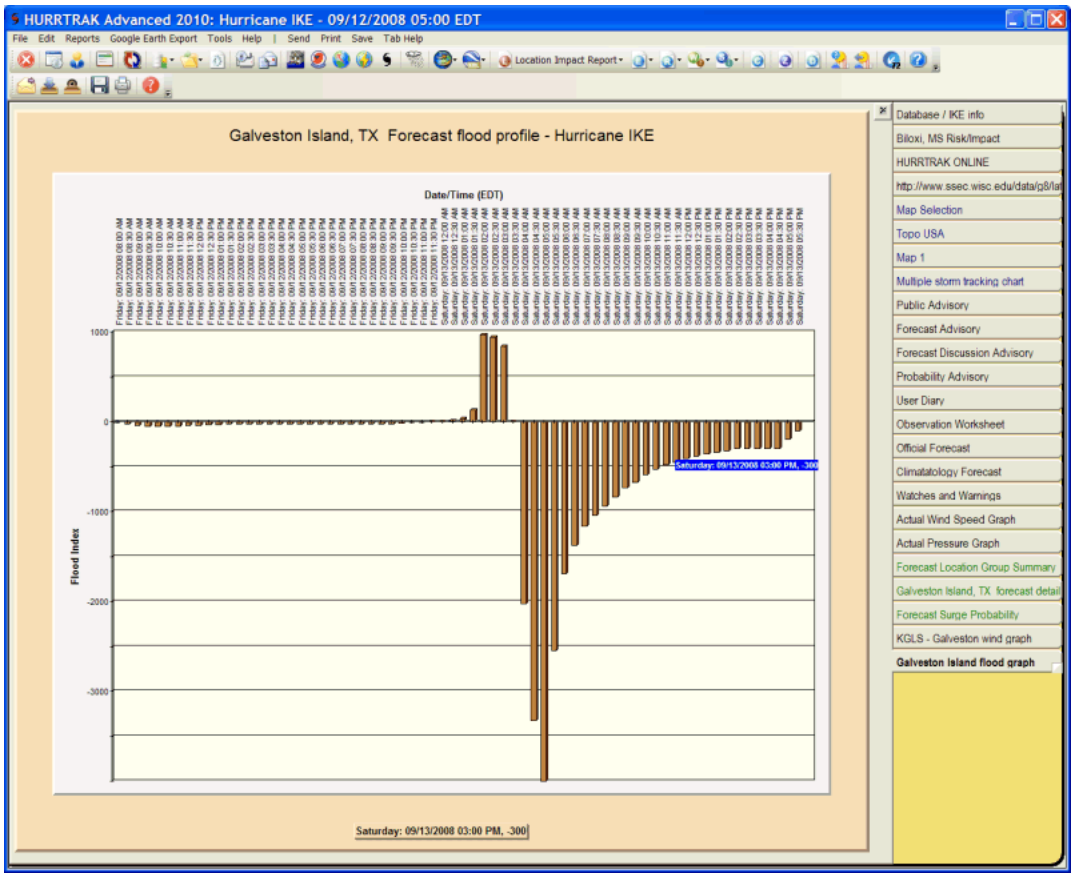
Standard System Menu Functions
Send - Sends current tab's image via email image or PDF as shown on page 156.
.
Print - Prints the graph to the windows printer. (Print preview)
Save Image - Saves the image to a file or to Email Outbox.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information

TIPS:

- Pointing and clicking on an observation point will display the date, time and wind data for that observation.
- Left clicking on the chart will toggle the Wind direction plot.

Detailed Location/County/Zip Flood Index Graph Tab



Description: This tab graphically displays the flood index profile for the analyzed location when performing a location analysis (provided that location has had its onshore wind flow angle defined). The flood index is not calculated until the location falls within the area of gale force winds. If 1-hour is selected, then this represents the flood index for that hour. If 3-hour is selected, then the value represents a 3 hour cumulative total.

Tab Created by: Selecting Graph - Flood Profile from the Location/County/Zip Detail report tab.

Tab Close Allowed: Yes

Functions Available:
Menu:

Standard System Menu Functions
Send - Sends current tab's image via email image as shown on page 156.
Print - Prints the graph to the windows printer. (Print Preview)
Save Image - Saves the image to a file or to Email Outbox.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information

Tips:

- Pointing and clicking on an observation point will display the date, time and wind data for that point..
- Flood index calculations are not possible unless the location's flood direction has been identified in system setup - location maintenance.

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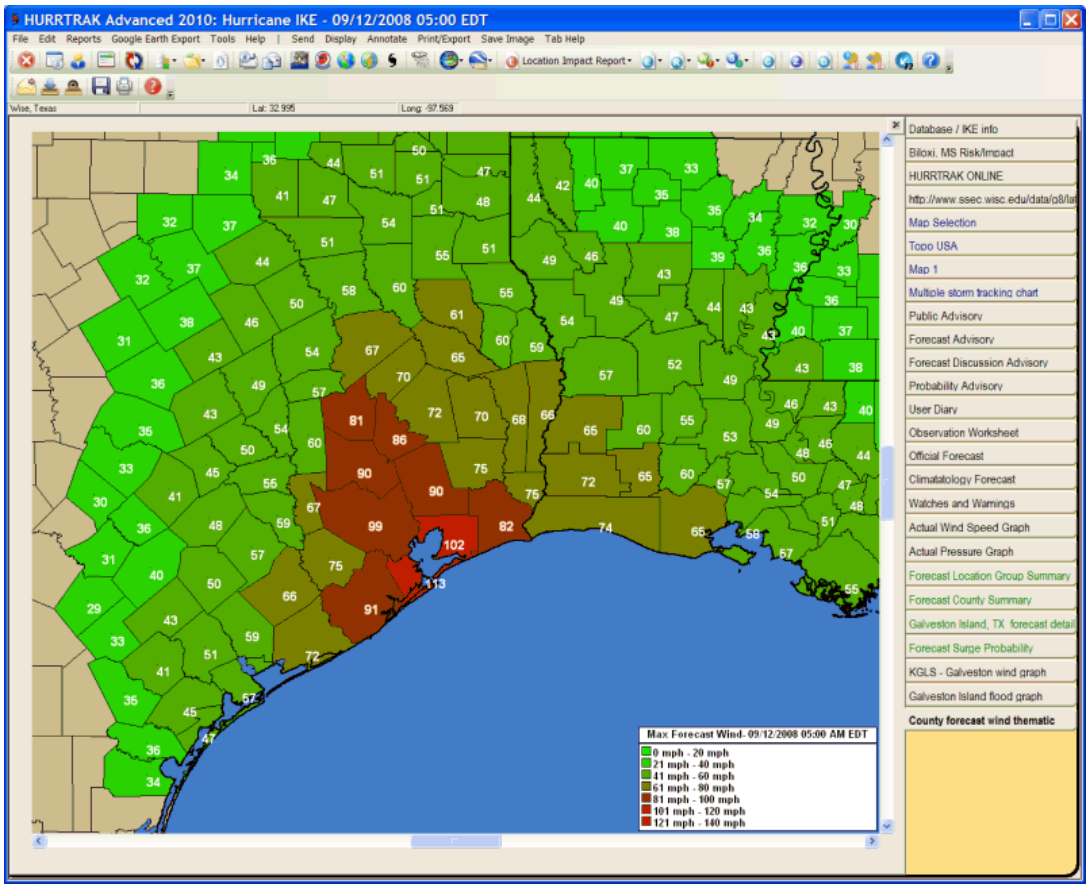
County/Zip Wind Thematic Tab


HURRTRAK Advanced 2010: Hurricane IKE - 09/12/2008 05:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Display Annotate Print/Export Save Image Tab Help
Location Impact Report
Database / IKE info
Biloxi, MS Risk/Impact
HURRTRAK ONLINE
Map Selection
Topo USA
Map 1
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph
Forecast Location Group Summary
Forecast County Summary
Galveston Island, TX forecast detail
Forecast Surge Probability
KGLS - Galveston wind graph
Galveston Island flood graph
County forecast wind thematic
Max Forecast Wind- 09/12/2008 05:00 AM EDT
0 mph - 20 mph
21 mph - 40 mph
41 mph - 60 mph
61 mph - 80 mph
81 mph - 100 mph
101 mph - 120 mph
121 mph - 140 mph

Description: This tab depicts the forecast or actual wind speeds in a county or zip code thematic type format. The colors used are controlled within the plotting options.

Tab Created by: Selecting the Thematic Map option from the County or Zip Code Summary Report tab.

Tab Close Allowed: Yes

Functions Available:

Menu:

Standard System Menu Functions

Send - Sends current tab's image via graphics or pdf via email image as shown on page 156..

Display - For a complete list of display options, see page 164.

Annotate – Allows the user to place text on the current image.

Print/Export – Allows the user to print the current image in color, gray scale, or B&W.. or send the image to Google Earth. See page 306 for more information on the Google Earth interface.

Save Image – Saves the image to the clipboard, PDF, Image file or to Email Outbox.

Toolbar: See APPENDIX T: Tool Bars on page 326 for more information

Tip: You can pan and zoom this map image by right clicking on the image.

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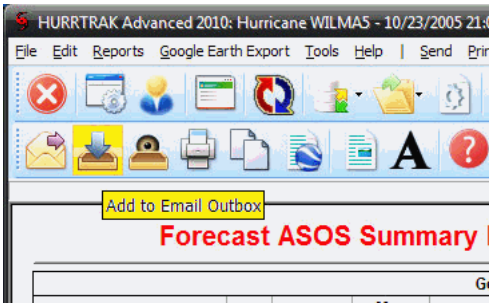
Miscellaneous Options in support of Tab Functions

The functions described below are utilized by the Information Tab Functions.

Email Outbox

The email outbox is a way for the user to select a group of Hurrtrak “outputs” and send them via email. All outputs are supported from graphics, text, tabular data and reports.

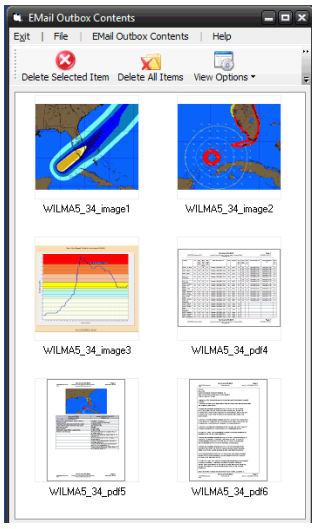
To add items to the Email Outbox… while viewing Hurrtrak information, simply select the “Add to Email Outbox” menu item or easier yet, select the Add to Email Outbox toolbar button.


HURRTRAK Advanced 2010: Hurricane WILMA5 - 10/23/2005 21:
File Edit Reports Google Earth Export Tools Help | Send Prir
Add to Email Outbox
Forecast ASOS Summary

When you have added a number of items to the outbox, you can then select the “View Email Outbox” option... again best done via the toolbar button.

HURRTRAK Advanced 2010: Hurricane WILMA5 - 10/
File Edit Reports Google Earth Export Tools Help |
Wind Speed:
View Email Outbox
irection:

This will display a window which shows all of the contents of the outbox, as well as options to Delete any of the items, and Email the Outbox contents.



When selecting the Email option, the user will be presented with the following screen allowing them to add the Email subject, text and recipients.

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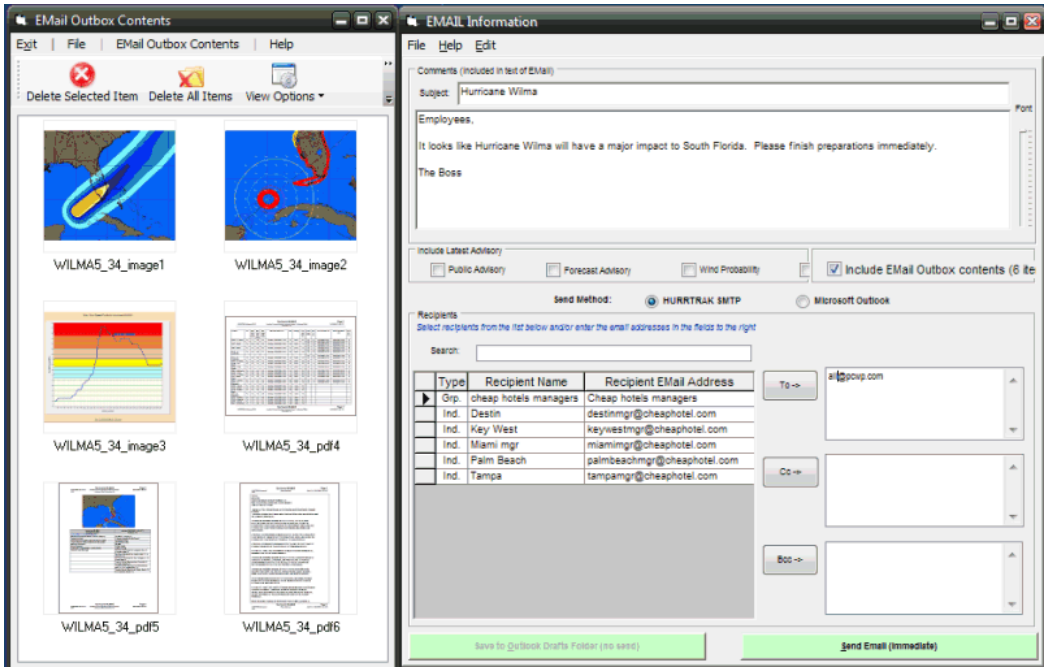
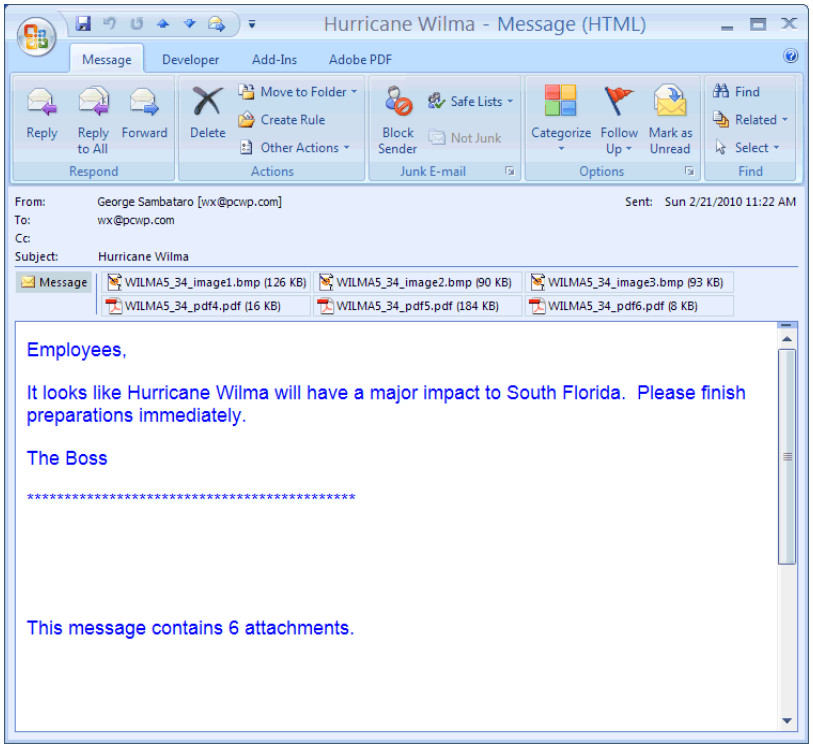
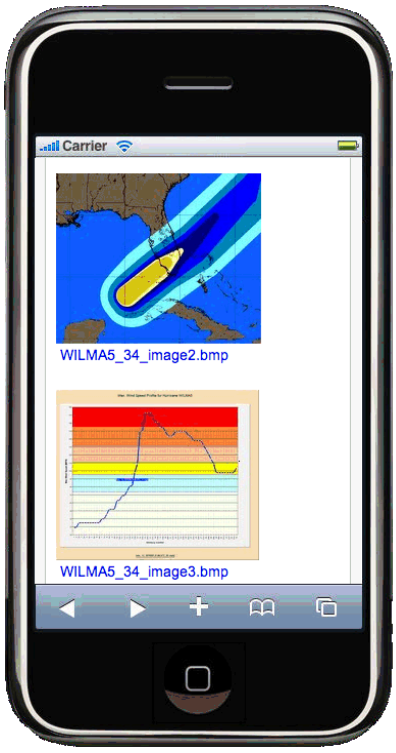


The Email outbox “spans” application modules... meaning if you add items to the outbox in the SloshView module, the Model Forecast module… and others, you are able to email them all as a group from any of those modules or the Hurricane Tracking application... i.e. mixing many types of output, all in 1 email.





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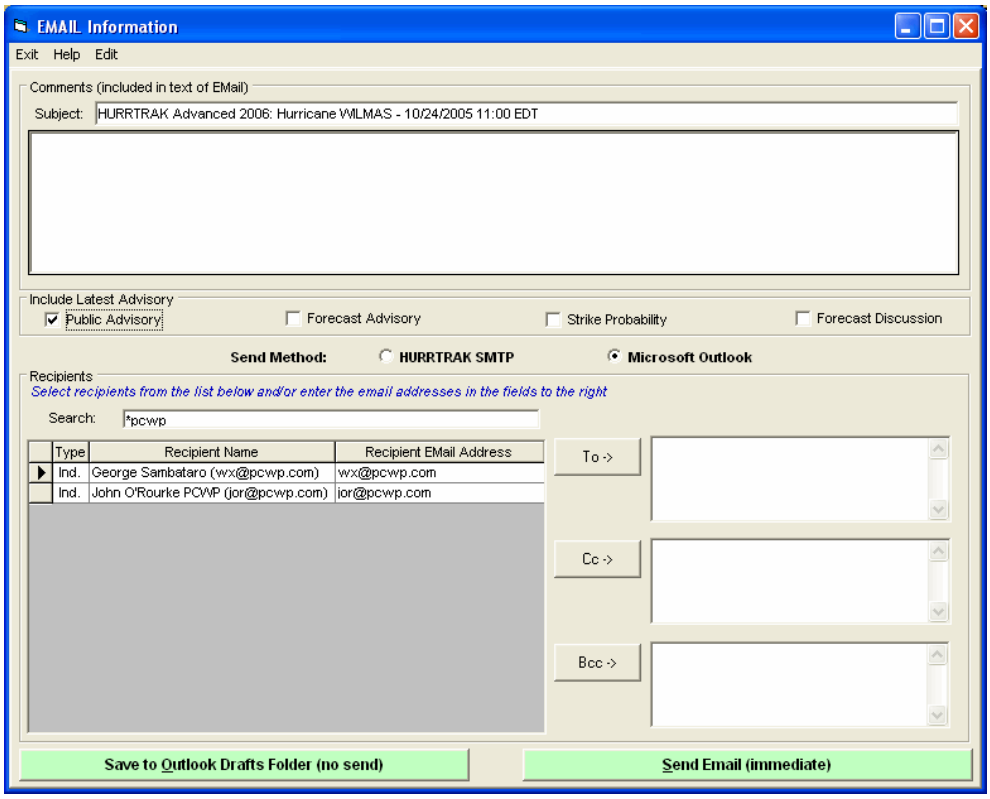
Send Email



This option allows the user to send graphics and/or text to a user or group of users. This screen is displayed when a user makes a send request when viewing a graphic (tracking chart) or text report data. See APPENDIX D: Email setup and capabilities on page 276 for more information on Email capabilities.

The data fields are:

Subject - The information you would like to appear in the subject line of the email note. It defaults to the current storm name, but can be overwritten.

Comments - The text portion of the email note.

Include Latest Advisories - The user may choose to attach the latest Public Advisory, Forecast Advisory, Forecast Discussion, or Strike Probability.

Recipients - Select the users or group of users that you would like to send, CC or BCC the email to.

Commands available:

Exit - Exits without sending.

Save – Saves Email to the MS Outlook "drafts" folder. This allows the user to later edit the email before sending. This is only available when choosing the MS Outlook option.

Send - Sends Email to the designated recipients. When the email is being sent, a confirmation window is displayed in the lower right of the user's screen display.

Tracking Chart Display Options

While these menu options are available... for a subset of these we suggest you utilize the command bar icons as they utilize a "data layering" capability. See page 326 for more information.

DISPLAY:

Locations - Displays all of the locations in the selected location group. The text properties used for displaying the location names is set in font options. The user can optionally display the distance of a location from the center of the storm or just plot the locations “point”. The unit of measure used for distance, as well as the font size and color of locations, is set in the unit of measure options.

County Names - Displays all of the county names for the counties visible on the current chart. The text properties used for printing the county names is set in font options

Latitude/ Longitude - Displays latitude and longitude grid along the sides and top of the tracking chart. The text properties of these values are set in font options.

Chart Notes - Displays storm observation information (date, time, wind, pressure) next to the observation points. If the points are close together, some chart notes will not plot to prevent overwriting. The text properties of chart notes are set in font options. See APPENDIX OO: Interactive Chart Notes on page 309 for more information on an alternative method of displaying chart notes.

Wind Field - Displays a pattern of wind arrows that indicate the likely wind speed and direction at that point. You may also "force" a wind arrow plot by clicking the left mouse button while over a point on the chart. Wind field arrows are only shown for areas that fall within the radius of 34, 50 and 64 knot winds. The size, density, color of the arrows, as well as the text properties of the wind value, are set in Options.

Wind Pattern – The wind pattern, different from the wind field, is a continuous color-shaded image that better represents the estimated wind speed across a region. When using AWE, the wind pattern shows the effects of surface friction on the wind speeds around a tropical cyclone. See APPENDIX QA: Advanced Wind Estimation Considerations on page 319 for more information on the Wind Pattern image.

Watch and Warning Areas - If available, this displays the areas of hurricane and tropical storm watches and warnings. The width of the warning color is twice as wide as the width of the watch color. The color and size of these areas are set in plotting options

Decision Arc - When this option is selected, a popup input area is displayed which allows the user to select the action point and override the current storm's forecasted speed and intensity before displaying the decision arc. For more information on this topic, see Decision Support Capabilities

Range Rings - This option displays range rings (circles of equal distance) centered at the base location or storm center, as defined in general options. The color of the circle is determined by the color of the decision arc.

Wind Bands - This option displays the observed and/or forecast coverage of the areas of 3 wind fields. The system defaults to 34 knot, 50 knot and 64 knot wind bands, however, it can be modified in the wind band options.

Strike Probability Analysis - Displays, on a separate chart (but using the same map), a grid of strike probability values, as well as a contour analysis of the strike probabilities. The text properties used to display the values, as well as the color and density of the contour analysis, is set in strike probability options. You can choose to display the total strike probability analysis, or the next 24 hours only, or the period from 24-36 hours only, 36-48 hours only, or 48-72 hours only.

Strike Probabilities Location Values - Displays strike probabilities for a location group on the tracking chart being viewed. The text properties used for displaying these values can be set in font options.

Wind Probability Analysis - Displays, on a separate chart (but using the same map), a grid of wind probability values as well as a contour analysis of the probabilities. The text properties used to display the values, as well as the color and density of the contour analysis, is set in strike probability options. You can choose to display the 34, 50 or 64 knot total wind probabilities.

Wind Probabilities Location Values - Displays wind probabilities for a location group on the tracking chart being viewed. The text properties used for displaying these values can be set in font options.

3D Wind Surface - Using the current tracking chart as the x-y graphing area, this option display a 3-dimensional wind surface graph. The density of the graph is set in general options.

Surge Probabilities – Displays the selected (footage) surge probability on the current tracking chart. When selected, the available surge levels are displayed… thus allowing the user to select one of the levels. i.e. Display Surge probability for a 8 foot storm surge. The percentages at selected locations are also displayed on the map. See page 297 for more information.

Flood Index - Displays the flood index on the current tracking chart. The sub-options are:
Current - Displays the flood index for the current (as indicated on tracking chart) observation. This analysis should only be done when the storm is currently affecting an area.
Forecast - Displays the flood index for either the next 1, 2, or 3 hours or the maximum forecast flood index for a 1, 2, or 3-hour period. This analysis should only be done when a storm is forecast to affect an area.
Actual - Displays the maximum "observed" flood index for a 1, 2, or 3-hour cumulative period. This analysis should only be done when the storm has already affected an area.
The text properties used to display the values, as well as the color and width of the flood analysis, is set in flood index options. For more information on this topic see page 290.

Forecast Rainfall Analysis - This option displays the latest rainfall forecast in a graphical manner. The option is only active if the system has recently downloaded rainfall forecast information from the HURRTRAK ONLINE system. For more information on this, see HURRTRAK Rainfall Forecast capabilities on page 304.

Forecast Rainfall Thematic - This option displays the latest rainfall forecast in a county thematic manner. The option is only active if the system has recently downloaded rainfall forecast information from the HURRTRAK ONLINE system.

Wind Pattern Legend - Display the wind / color legend for the Wind Pattern Display image.

Watch and Warning Legend - Displays the legend for the NHC watch and warning areas indicating the type of watch and warning and the color used to depict it.

Surge Probability Legend - Displays the color-coded surge probability legend.

Flood Legend - Displays the color-coded flood index legend.

Track Color Legend - Displays the color-coded track legend.

Forecast Error Legend – Displays the color coded forecast error legend.

Wind Field Legend – Displays the color coded legend for wind radii.

Chart Plot options

While these menu options are available... for a subset of these we suggest you utilize the command bar icons as they utilize a "data layering" capability. See page 326 for more information.

PLOT:

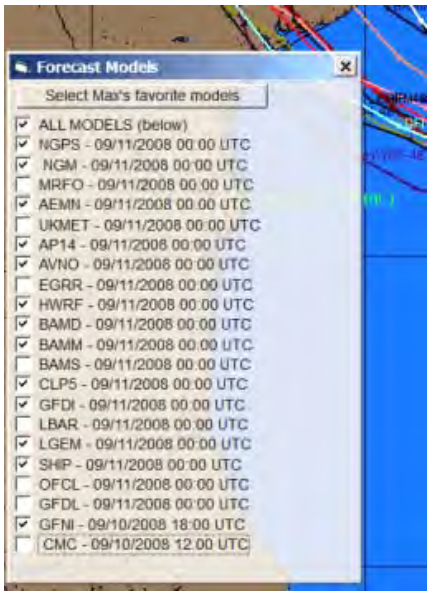
Track - Re-plots the current storm's track with wind field circles. The wind field circle color is set in plotting options.

"What If" Forecast - Displays the projected "what if" track. This option can only be selected if the "what if" has been enabled in the Setup What If Scenario Option. The color of the track is set in plotting options. For a complete discussion of this and other items, see Decision Support Capabilities.

Official Forecast - Displays the storm's selected forecast track. The color of the track is set in plotting options. The sub options include plotting the forecast with average error which displays the storm's selected forecast track along with the area of average forecast error through 72 and/or 120 hours OR the user can select to display ONLY the average error area. . For the Atlantic, the NHC publishes yearly their average error for the 12, 24, 36, 48, 72, 96 and 120 hours verification times. These values can be adjusted in the System Setup component of the system. The color of the areas as well as whether to plot the 72 and/or 120 hour forecast can be set in plotting options.

For plotting prior forecast tracks we recommend the method described on page 170.

Hurricane Model Forecast - Displays a “window” that shows all of the available forecast models. The list is based on your settings in the User Options (plotting-Tab 1). The user simply selects or de-selects the models they want to display… and when done, closes the “window”. By Selecting the "Max's favorite models", a small subset of the available models will be display. Yes these are Max Mayfield's favorites.



The color of the model tracks are also set in the plotting user options. For more information on model forecast, see hurricane forecast models on page 305.

Climatology Forecast - Displays the storm's selected climatological forecast track. Selecting **"latest"** forces the system to calculate the forecast before displaying it. This is a much more convenient method than having to first use the Edit - Climatology Forecast function. The color of the forecast track is set in plotting options.

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Wind Band Display Options

While these menu options are available... for a subset of these we suggest you utilize the command bar icons as they utilize a "data layering" capability. See page 326 for more information.

DISPLAY:

Locations - Displays all of the locations in the selected location group. The text properties used for displaying the location names is set in font options. The user can optionally display the distance of a location from the center of the storm or just plot the locations “point”. The unit of measure used for distance, as well as the font size and color of locations, is set in the unit of measure options.

County Names - Displays all of the county names for the counties visible on the current chart. The text properties used for printing the county names is set in font options

Latitude/ Longitude - Displays latitude and longitude grid along the sides and top of the tracking chart. The text properties of these values are set in font options.

Chart Notes - Displays storm observation information (date, time, wind, pressure) next to the observation points. If the points are close together, some chart notes will not plot to prevent overwriting. The text properties of chart notes are set in font options. See APPENDIX OO: Interactive Chart Notes on page 309 for more information on an alternative method of displaying chart notes.

Wind Field - Displays a pattern of wind arrows that indicate the likely wind speed and direction at that point. You may also "force" a wind arrow plot by clicking the left mouse button while over a point on the chart. Wind field arrows are only shown for areas that fall within the radius of 34, 50 and 64 knot winds. The size, density, color of the arrows, as well as the text properties of the wind value, are set in Options.

Watch and Warning Areas - If available, this displays the areas of hurricane and tropical storm watches and warnings. The width of the warning color is twice as wide as the width of the watch color. The color and size of these areas are set in plotting options

Decision Arc - When this option is selected, a popup input area is displayed which allows the user to select the action point and override the current storm's forecasted speed and intensity before displaying the decision arc. For more information on this topic, see Decision Support Capabilities

Range Rings - This option displays range rings (circles of equal distance) centered at the base location or storm location, as defined in general options. The color of the circle is determined by the color of the decision arc.

Strike Probability Analysis - Displays, on a separate chart (but using the same map), a grid of strike probability values, as well as a contour analysis of the strike probabilities. The text properties used to display the values, as well as the color and density of the contour analysis, are set in strike probability options. You can choose to display the total strike probability analysis, or the next 24 hours only, or the period from 24-36 hours only, 36-48 hours only, or 48-72 hours only.

Strike Probabilities Location Values - Displays strike probabilities for a location group on the tracking chart being viewed. The text properties used for displaying these values can be set in font options.

Wind Probability Analysis - Displays, on a separate chart (but using the same map), a grid of wind probability values, as well as a contour analysis of the probabilities. The text properties used to display the values, as well as the color and density of the contour analysis, is set in strike probability options. You can choose to display the 34, 50 or 64 knot total wind probabilities.

Wind Probabilities Location Values - Displays wind probabilities for a location group on the tracking chart being viewed. The text properties used for displaying these values can be set in font options.

Surge Probabilities – Displays the selected (footage) surge probability on the current tracking chart. When selected, the available surge levels are displayed… thus allowing the user to select one of the levels. i.e. Display Surge probability for a 8 foot storm surge. The percentages at selected locations are also displayed on the map. See page 297 for more information.

Flood Index - Displays the flood index on the current tracking chart. The sub-options are:

Current - Displays the flood index for the current (as indicated on tracking chart) observation. This analysis should only be done when the storm is currently affecting an area.

Forecast - Displays the flood index for either the next 1, 2, or 3 hours or the maximum forecast flood index for a 1, 2, or 3-hour period. This analysis should only be done when a storm is forecast to affect an area.

Actual - Displays the maximum "observed" flood index for a 1, 2, or 3-hour cumulative period. This analysis should only be done when the storm has already affected an area.

The text properties used to display the values, as well as the color and width of the flood analysis, are set in flood index options. For more information on this topic, see page 290.

Wind Band Legend - Displays the wind level and color legend for the wind pattern display image.

Wind Band Legend - Displays a legend showing the wind speeds analyzed and associated plot colors. The colors and wind speeds are set in wind band options. Does not apply with a QUICK TAU plot.

Sea Height Legend - Displays a legend showing the likely sea heights and associated plot colors. This only applies over open ocean/sea areas. Does not apply with a QUICK TAU plot.

Watch and Warning Legend - Displays the legend for the NHC watch and warning areas indicating the type of watch and warning and the color used to depict it.

Surge Probability Legend - Displays the color-coded surge probability legend.

Flood Legend - Displays the color-coded flood index legend.

Track Color Legend - Displays the color-coded track legend.

Forecast Error Legend – Displays the color coded forecast error legend.

Wind Field Legend – Displays the color coded legend for wind radii.

Strike/Wind Probability Tab Display Options

While these menu options are available... for a subset of these we suggest you utilize the command bar icons as they utilize a "data layering" capability. See page 326 for more information.

DISPLAY:

Locations - Displays all of the locations in the selected location group. The text properties used for displaying the location names is set in font options. The user can optionally display the distance of a location from the center of the storm or just plot the locations “point”. The unit of measure used for distance, as well as the font size and color of locations, is set in the unit of measure options.

County Names - Displays all of the county names for the counties visible on the current chart. The text properties used for printing the county names are set in font options

Latitude/ Longitude - Displays latitude and longitude grid along the sides and top of the tracking chart. The text properties of these values are set in font options.

Chart Notes - Displays storm observation information (date, time, wind, pressure) next to the observation points. If the points are close together, some chart notes will not plot to prevent overwriting. The text properties of chart notes are set in font options. See APPENDIX OO: Interactive Chart Notes on page 309 for more information on an alternative method of displaying chart notes.

Watch and Warning Areas - If available, this displays the areas of hurricane and tropical storm watches and warnings. The width of the warning color is twice as wide as the width of the watch color. The color and size of these areas are set in plotting options

Decision Arc - When this option is selected, a popup input area is displayed which allows the user to select the action point and override the current storm's forecasted speed and intensity before displaying the decision arc. For more information on this topic, see Decision Support Capabilities

Range Rings - This option displays range rings (circles of equal distance) centered at the base location or storm center as defined in general options. The color of the circle is determined by the color of the decision arc.

Strike Probabilities Location Values - Displays strike probabilities for a location group on the tracking chart being viewed.

Wind Probabilities Location Values - Displays wind probabilities for a location group on the tracking chart being viewed.

Surge Probabilities – Displays the selected (footage) surge probability on the current tracking chart. When selected, the available surge levels are displayed… thus allowing the user to select one of the levels. i.e. Display Surge probability for a 8 foot storm surge. The percentages at selected locations are also displayed on the map. See page 297 for more information.

Watch and Warning Legend - Displays the legend for the NHC watch and warning areas indicating the type of watch and warning and the color used to depict it.

Flood/Surge Probability Legend - Displays the legend for the flood or storm surge probability colors.

Track Color Legend - Displays the color-coded track legend.

Forecast Error Legend – Displays the color coded forecast error legend.

Wind Field Legend – Displays the color coded legend for wind radii.

Strike/Wind Probability Tab Plot Options

While these menu options are available... for a subset of these we suggest you utilize the command bar icons as they utilize a "data layering" capability. See page 326 for more information.

PLOT:

Replot Probabilities - This option replots the strike or wind probability contours and values.

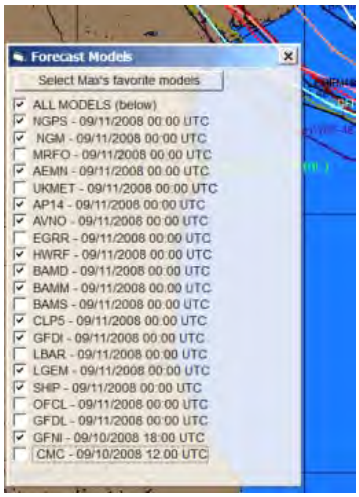
Track - Replots the current storm's track with wind field circles. The wind field circle color is set in plotting options.

"What If" Forecast - Displays the projected "what if" track. This option can only be selected if the "what if" has been enabled in the Setup What If Scenario Option. The color of the track is set in plotting options. For a complete discussion of this and other items, see Decision Support Capabilities.

Official Forecast - Displays the storm's selected forecast track. The color of the track is set in plotting options. The sub options include plotting the forecast with average error which displays the storm's selected forecast track along with the area of average forecast error through 72 and/or 120 hours OR the user can select to display ONLY the average error area. . For the Atlantic, the NHC publishes yearly their average error for the 12, 24, 36, 48, 72, 96 and 120 hours verification times. The color of the areas as well as whether to plot the 72 and/or 120 hour forecast can be set in plotting options.

For plotting prior forecast tracks we recommend the method described on page 170.

Hurricane Model Forecast - Displays a "window" that shows all of the available forecast models. The list is based on your settings in the User Options (plotting-Tab 1). The user simply selects or de-selects the models they want to display… and when done, closes the "window". By Selecting the "Max's favorite models", a small subset of the available models will be display. Yes these are Max Mayfield's favorites.



The color of the model tracks are also set in the plotting user options. For more information on model forecast, see hurricane forecast models on page 305.

Climatology Forecast - Displays the storm's selected climatological forecast track. Selecting **"latest"** forces the system to calculate the forecast before displaying it. This is a much more convenient method than having to first use the Edit - Climatology Forecast function. The color of the forecast track is set in plotting options.

Past Storm track(s) - Allows the user to select and plot any past storm(s) from the history database.

Thematic Tab Display Options

DISPLAY:

County Names - Plots the names of all of the counties on the map.

County Values - Plots the wind or rainfall values for all of the counties on the map.

County names and values - Plots both the county name and the wind or rainfall values for all of the counties on the map.

Clear - Clears the names and values from the map.

Decision Arc Pop-up Input Example

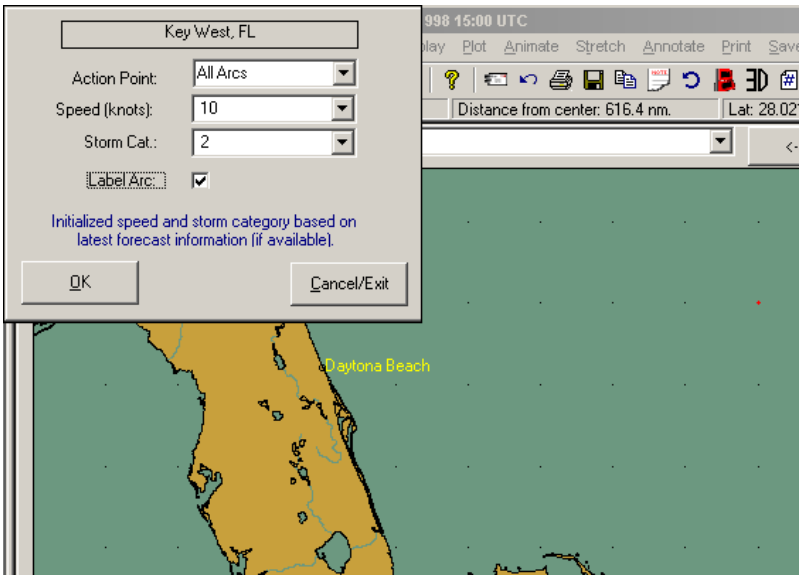


Figure 4

At this point, the user can select the action point and override the storm's forecast speed and intensity. When OK is selected, the decision arc is plotted. Look at the next image to see an example of a decision arc.

Decision Arc Example

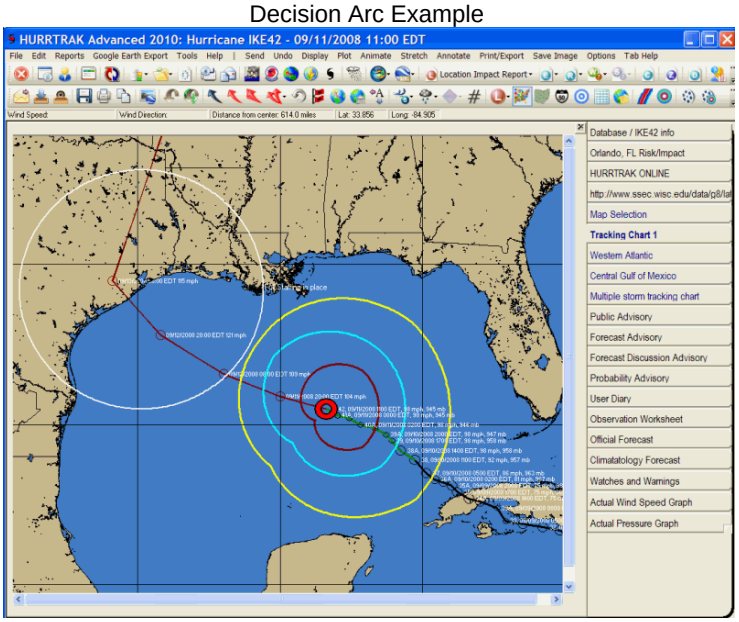


Figure 5

This chart displays the decision arc based on the information provided in the decision arc input screen. For more information on this topic, see page 268.

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Annotate Chart

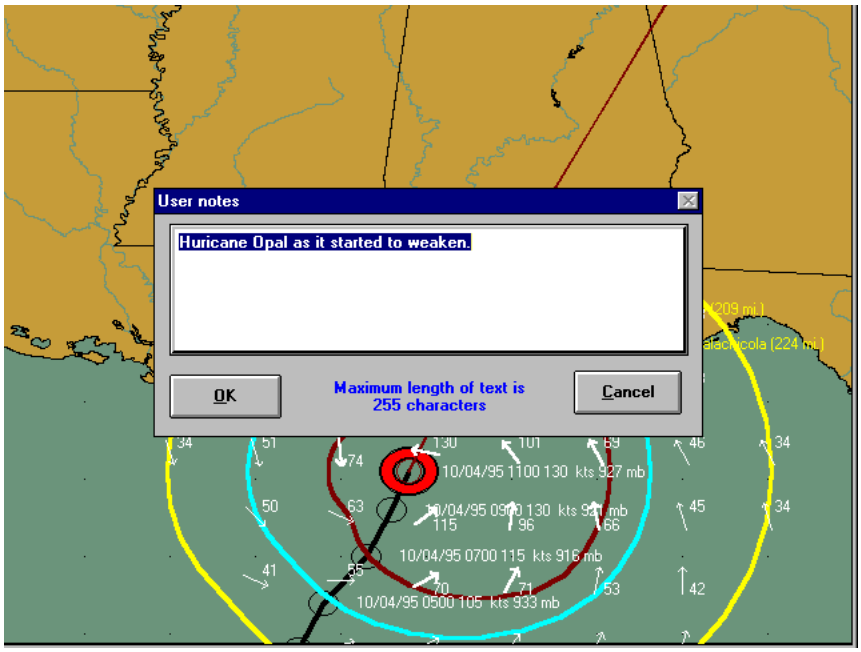
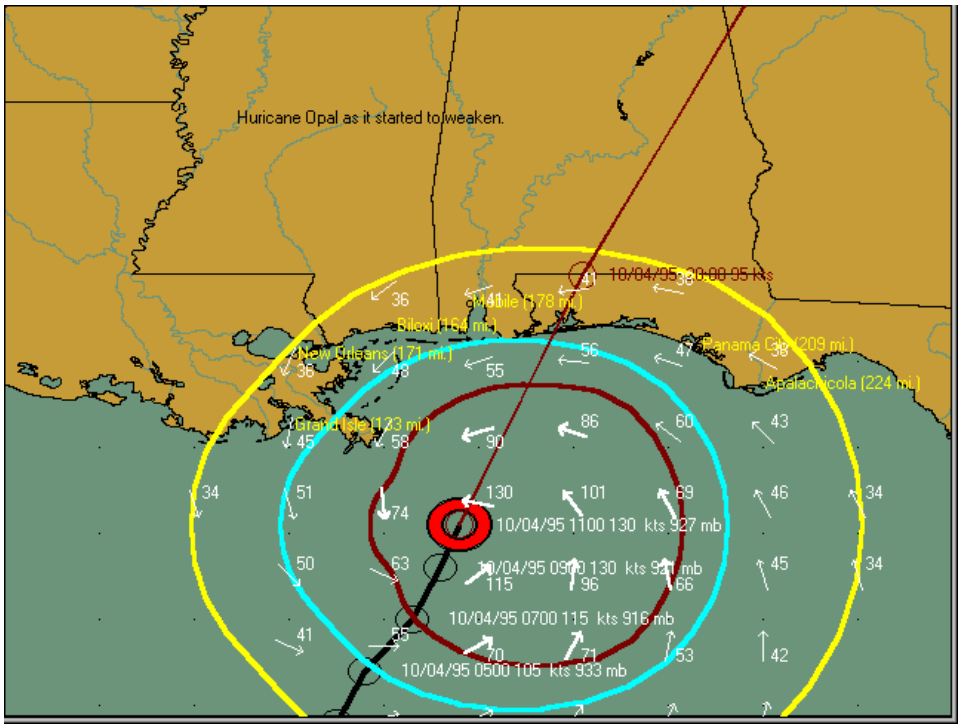

User notes
Huricane Opal as it started to weaken.
OK
Maximum length of text is
255 characters
Cancel
10/04/95 1100 130 kts 927 mb
10/04/95 0700 115 kts 916 mb
10/04/95 0500 105 kts 933 mb

Figure 6

This option allows the user to add comments, etc. directly onto the tracking chart image. When Annotate is selected, any time the mouse button is pressed, the user notes entry screen, shown above, is displayed. The text that is entered will appear at the position where the mouse button was pressed. The size, color and other font properties used for the user notes are set in user preferences. Selecting End Annotate will return the mouse button function to its original function.

The next image is an example of an annotated chart.



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Print/Export Options (Graphics)

Color - Prints the current image in color.

Gray Scale - Prints the current in pre-determined gray scale.

Fax - Prints the current image after automatically modifying the image to “line art" as shown below. All colors are changed to black, while the Ocean and Land areas are set to white. (Not available for H*Wind, Wind Band and Thematic Maps).

Export to Google Earth - Exports the displayed image to Google-Earth.

Sample Fax Print Image

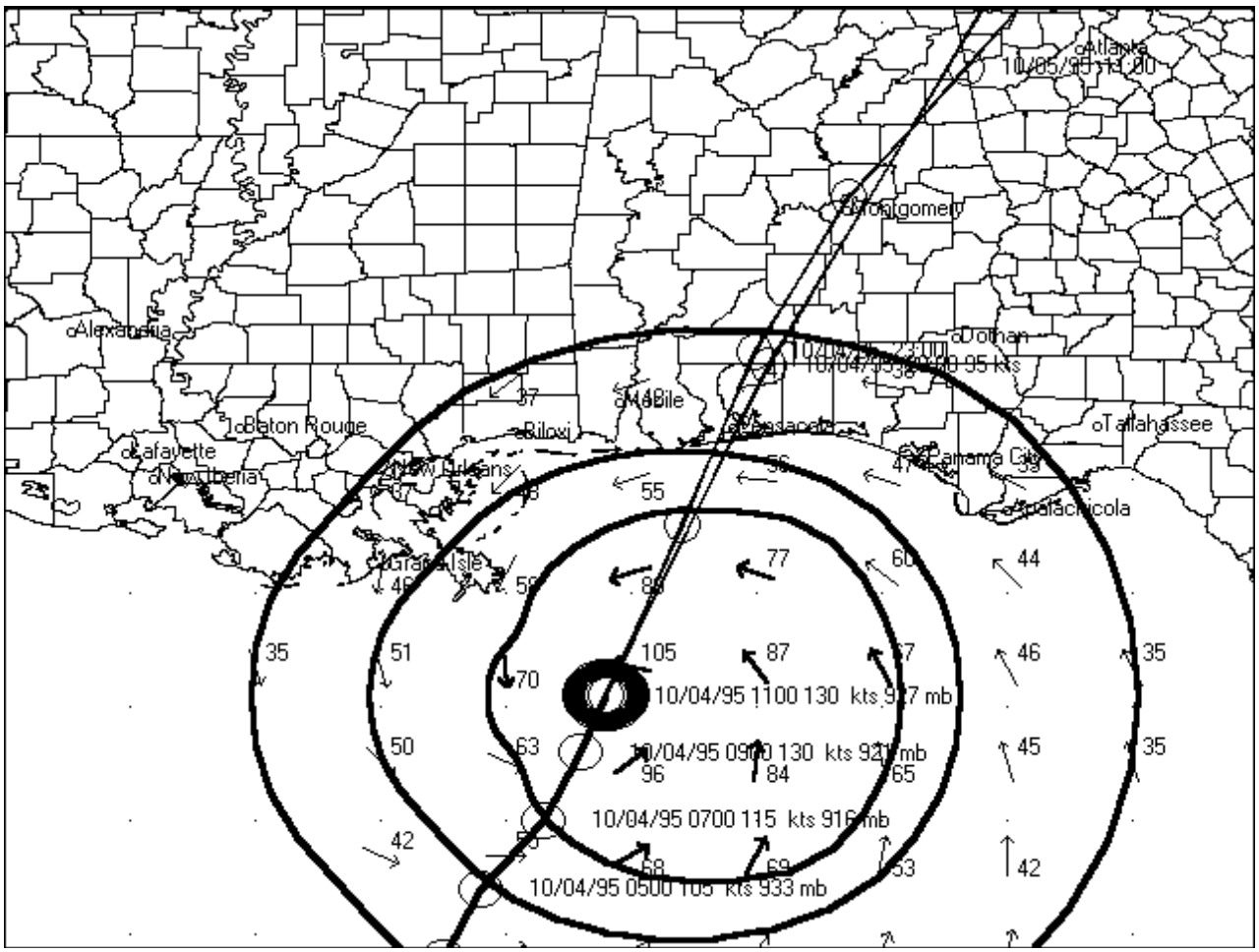

Figure 7

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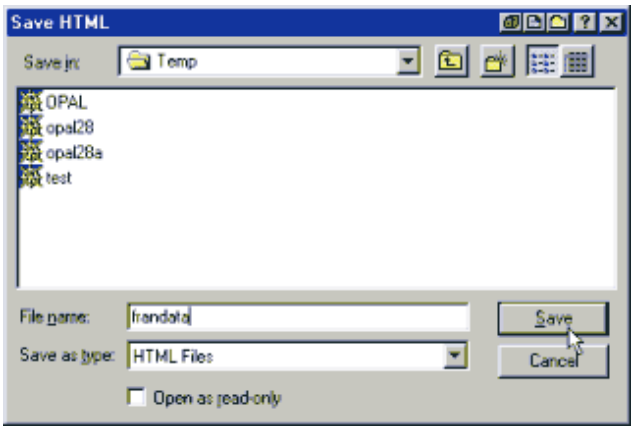
Print/Export Options (Reports/Text)

The report print option has several capabilities.

Print Preview - Previews the printed output on your screen. After which the user can review or print the output.
Direct to Printer - Prints the output directly to the designated printer.
Export to HTML - This option allows the user to export certain text reports and data to an HTML format. When this option is selected, a file dialog box is displayed requesting the name of the HTML file the user would like to create.



Special HTML Considerations: The size of the HTML files created can be very large. Avoid creating HTML for lengthy reports and mainly use this on smaller reports and text data.

Special License Agreement Considerations: Although we provide the ability to create "Internet ready" HTML, the standard software license agreement still prohibits the use of any of the system's output on the Internet without prior approval of PC Weather Products, Inc. The output may be used, however, on internal Intranet sites, since that stays within the provisions of the license agreement.

Export to PDF file - This option allows the user to export certain text reports and data to an Adobe Acrobat PDF format. PDF files have become a standard in sharing reports, as they maintain their intended formatting when viewed by the recipient. When this option is selected, a file dialog box is displayed requesting the name of the HTML file the user would like to create.

Export to Text Delimited - This option allows the user to export certain text reports and data to a comma-delimited format. This data file will then easily import into many database and spreadsheet applications. When this option is selected, a file dialog box is displayed requesting the name of the file the user would like to create.
Special Export Considerations: The first line of the exported data file contains the field names of the subsequent data. Some applications will accept this first line of data as the name of the database field.

Export to EXCEL - This option allows the user to export certain text reports and data to Microsoft EXCEL for further analysis. EXCEL™ must be installed on the user's system for this to work.

Export to GOOGLE EARTH - For summary impact reports only. This exports the contents of the summary report to a Google Earth "native" KML file. This allows the user to view the report information on the GE interface.

Print/Export "Executive style report" – For summary impact reports only. This option will either Print, Export to HTML, or save as a PDF, a report which has been reformatted in a non-tabular fashion. See the Appendix for an example of this report.

Save Image Options

Copy to Clipboard - Copies the current image to the windows clipboard for pasting into most graphics applications.

Save to File - Saves the current image to a GIF, BMP, PCX, TIF or JPG file. Most all windows graphics and word processing applications accept BMP files.

Save fax image to File - Saves the current image to a GIF, BMP, PCX, TIF, or JPG file after automatically modifying the image to "line art". All colors are changed to black, while the Ocean and Land areas are set to white.

Save to PDF File - Saves the current image to an Adobe Acrobat PDF format. PDF files have become a standard in sharing reports, as they maintain their intended formatting when viewed by the recipient.

Save to Email Outbox - Saves the current image to the Email Outbox. See page 154 for more information on this function.

Save to Animated GIF - (Animation only) - If saving an animation, this option saves the current animation to an animated GIF file. Animated GIF's can be viewed with Internet Explorer, as well as some other software.

Additional Toolbar Options:

Prior Forecast – While viewing most tracking charts, the user can easily display prior forecast tracks for the storm by selecting the command bar icon (highlighted) shown below.

This will bring up a menu whereby you can then select / deselect the prior forecast tracks you would like to display.

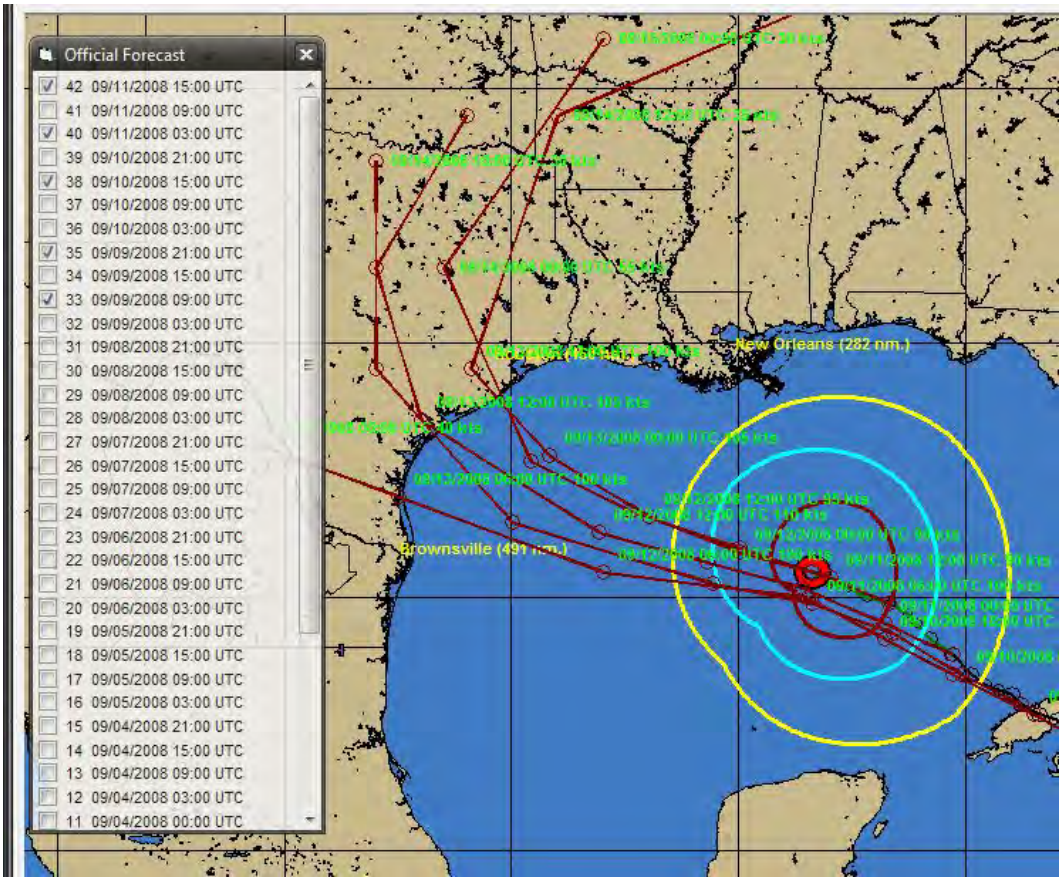
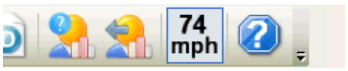


Chart Display "options"

MousePointer - While viewing a tracking chart, the user can display cursor positional information by selecting any (or all) of the following items:
Show Wind / Wind Forecast Value – When in the default mode, it displays the likely wind speed values at that location. When the user toggles the toolbar button to “Show Forecast winds”, this will show the forecast sustained wind and gust for that location. The toolbar icon is located on the primary toolbar.

- In this mode, the mouse will display the wind speed at that point, at the current time.



- In this mode, the mouse will display the forecast wind speeds (sustained and gusts).

Show Distance to Center - Displays the distance to the center of the storm from that location.
Show Latitude - Displays the latitude of the cursor position.
Show Longitude - Display the longitude of the cursor position.

The unit of measure for the MousePointer data is not shown, but is defined in user options

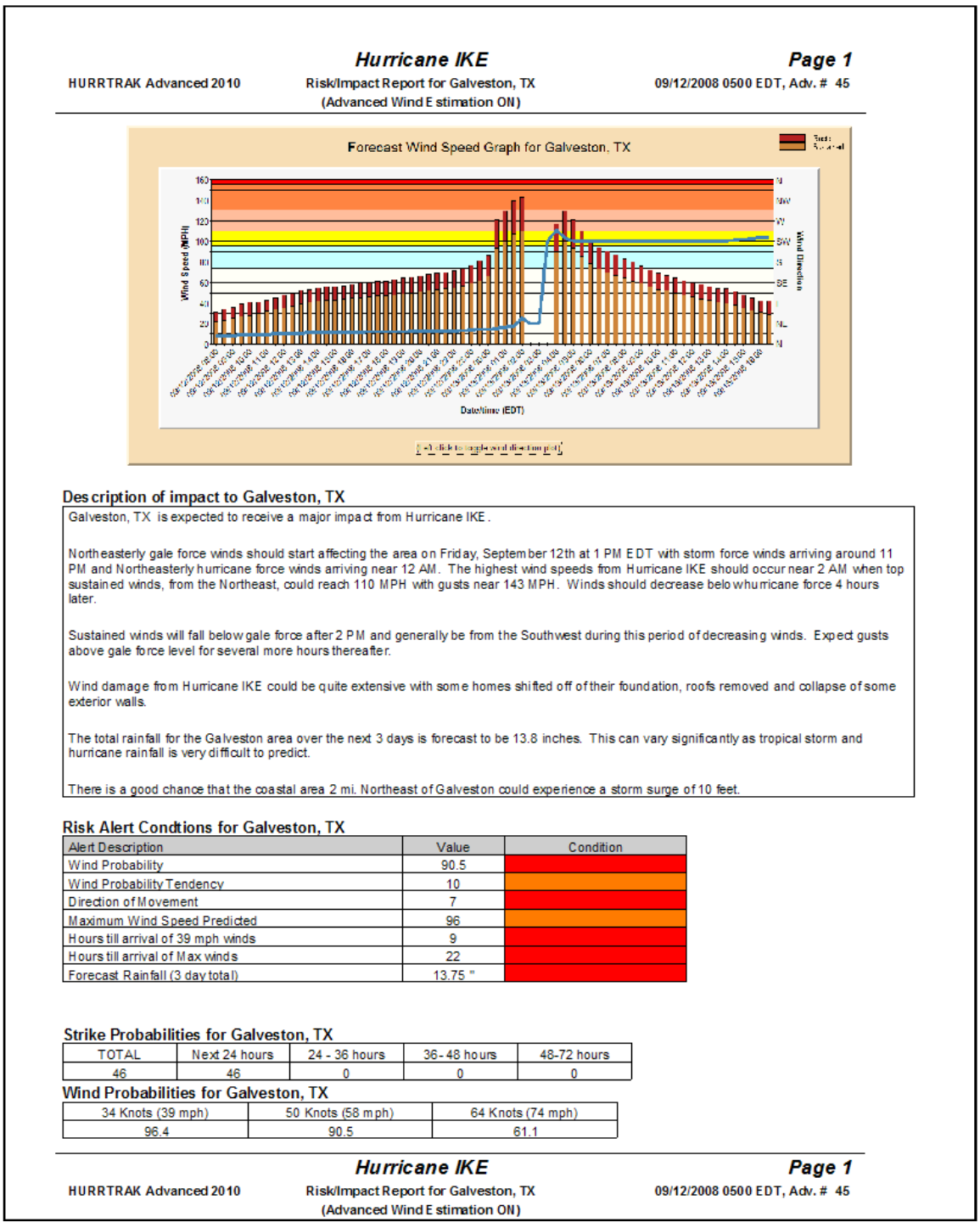
.

Status bar - This option allows the user to switch the status bar from cursor positional data to general storm information data.

Non Tab Based Reports

Forecast Location Risk/Impact Report (non tab)

The Risk / Impact report is designed for users that want to see both the risk factors and the impact to a set of locations. It mirrors the output on the Risk/Impact Tab and can be generated as an option from that tab or via the Reports Menu dropdown. An example of this report for one location is shown below. (Reports can be generated for multiple locations)



Hurricane IKE ***Page 1***

HURRTRAK Advanced 2010 | Risk/Impact Report for Galveston, TX (Advanced Wind Estimation ON) | 09/12/2008 0500 EDT, Adv. # 45

Forecast Wind Speed Graph for Galveston, TX

Description of impact to Galveston, TX

Galveston, TX is expected to receive a major impact from Hurricane IKE.

Northeasterly gale force winds should start affecting the area on Friday, September 12th at 1 PM EDT with storm force winds arriving around 11 PM and Northeasterly hurricane force winds arriving near 12 AM. The highest wind speeds from Hurricane IKE should occur near 2 AM when top sustained winds, from the Northeast, could reach 110 MPH with gusts near 143 MPH. Winds should decrease below hurricane force 4 hours later.

Sustained winds will fall below gale force after 2 PM and generally be from the Southwest during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.

Wind damage from Hurricane IKE could be quite extensive with some homes shifted off of their foundation, roofs removed and collapse of some exterior walls.

The total rainfall for the Galveston area over the next 3 days is forecast to be 13.8 inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

There is a good chance that the coastal area 2 mi. Northeast of Galveston could experience a storm surge of 10 feet.

Risk Alert Condtions for Galveston, TX

Alert Description	Value	Condition
Wind Probability	90.5	
Wind Probability Tendency	10	
Direction of Movement	7	
Maximum Wind Speed Predicted	96	
Hours till arrival of 39 mph winds	9	
Hours till arrival of Max winds	22	
Forecast Rainfall (3 day total)	13.75 "	

Strike Probabilities for Galveston, TX

TOTAL	Next 24 hours	24 - 36 hours	36 - 48 hours	48-72 hours
46	46	0	0	0

Wind Probabilities for Galveston, TX

34 Knots (39 mph)	50 Knots (58 mph)	64 Knots (74 mph)
96.4	90.5	61.1

Hurricane IKE ***Page 1***

HURRTRAK Advanced 2010 | Risk/Impact Report for Galveston, TX (Advanced Wind Estimation ON) | 09/12/2008 0500 EDT, Adv. # 45

Surge Probabilities for Galveston, TX (2 mi. Northeast)

5 Foot Storm Surge	10 Foot Storm Surge	15 Foot Storm Surge	20 Foot Storm Surge
91%	60%	0%	0%

Forecast Impact Summary for Galveston, TX - Advanced Wind Estimation ON

Max Wind (avg/gust)	Max Wind Date/Time	CPA	Rain		Arr. hrs.	Time of arrival	Time of departure	Duration
110 / 143 mph.	Saturday, 09/13/2008 02:00 EDT	2 mi.	13.8"	39 mph	8	09/12/2008 13:00 EDT	09/13/2008 14:00 EDT	26
				58 mph	18	09/12/2008 23:00 EDT	09/13/2008 09:00 EDT	11
				74 mph	19	09/13/2008 00:30 EDT	09/13/2008 06:00 EDT	7

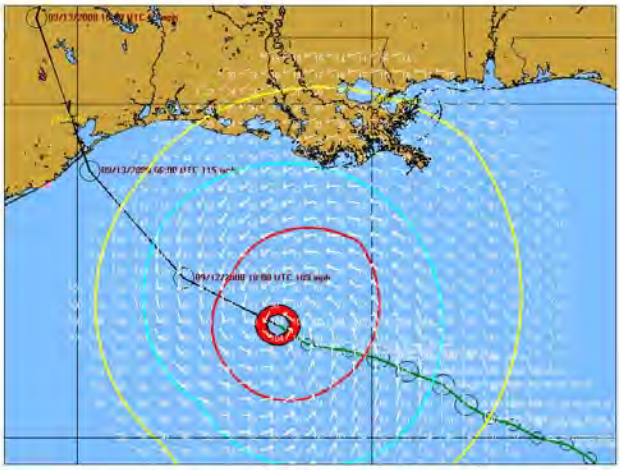
Hurricane IKE **Page 2**
HURRTRAK Advanced 2010 Risk/Impact Report for Galveston, TX 09/12/2008 0500 EDT, Adv. # 45
(Advanced Wind Estimation ON)

Forecast Location Executive Report (non tab)

The executive summary report is designed for users that prefer a non-tabular impact type report. An example of this is shown below without and with "Narrative Impact Text" selected.

Without Narrative Impact Text

HURRTRAK Advanced 2009 — ***Hurricane IKE*** — Location Forecast Analysis Summary Report - Advanced Wind Estimation On — ***Page 1*** 09/12/2008 09:00 UTC



Hurricane IKE Summary Update	Friday 09/12/2008 09:00 UTC Advisory 45
Current NHC Forecast Predictions	
Maximum Sustained Winds / storm Category:	**104 MPH / Category 2**
Forward motion:	**11 knots towards the Northwest**
Hurricane Force winds extend from the center:	**105 nautical miles**
Tropical Storm winds extend from the center:	**240 nautical miles**
Minimum Pressure:	**953 MB**
Storm Position:	**26.7N, 91.6W**
Estimated Coastal Strike County/Parish:	**Galveston, Texas**
Watches and Warnings	**Hurricane Warning from Baffin Bay, TX to Morgan City, LA**
	Tropical Storm Warning from Port Mansfield, TX to Baffin Bay, TX
	Tropical Storm Warning from Morgan City, LA to Miss./Alabama border, AL
San Luis Pass, TX	
Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 05:30 PM
Duration of Tropical Storm force winds:	21 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	90 MPH / 118 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 06:00 AM
Duration of Hurricane Force Winds:	4 hours
Estimated closest point of approach:	15 miles
Forecast Rainfall (3 day total):	11.3 inches
Wind Probabilities (34, 50, 64 knots):	96% 91% 61%
Surge Probabilities (5', 10', 15', 20') 2 nm. Northeast	93% 51% 0% 0%
High Island, TX	
Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 06:30 PM
Duration of Tropical Storm force winds:	20 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	67 MPH / 88 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 06:30 AM
Duration of Hurricane Force Winds:	N/A

HURRTRAK Advanced 2009 — ***Hurricane IKE*** — Location Forecast Analysis Summary Report - Advanced Wind Estimation On — ***Page 1*** 09/12/2008 09:00 UTC

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Hurricane IKE Summary Update	Friday 09/12/2008 09:00 UTC Advisory 45
Estimated closest point of approach:	31 miles
Forecast Rainfall (3 day total):	12.8 inches
Wind Probabilities (34, 50, 64 knots):	98% 89% 62%
Surge Probabilities (5', 10', 15', 20') 2 nm. Southwest	96% 72% 0% 0%
Sabine Pass, TX	
Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 05:30 PM
Duration of Tropical Storm force winds:	22 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	59 MPH / 76 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 04:30 AM
Duration of Hurricane Force Winds:	N/A
Estimated closest point of approach:	59 miles
Forecast Rainfall (3 day total):	8.8 inches
Wind Probabilities (34, 50, 64 knots):	97% 86% 60%
Surge Probabilities (5', 10', 15', 20') 3 nm. South	100% 76% 0% 0%
Cameron, LA	
Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 07:00 PM
Duration of Tropical Storm force winds:	18 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	52 MPH / 67 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 06:00 AM
Duration of Hurricane Force Winds:	N/A
Estimated closest point of approach:	90 miles
Forecast Rainfall (3 day total):	4.8 inches
Wind Probabilities (34, 50, 64 knots):	90% 60% 26%
Surge Probabilities (5', 10', 15', 20') 2 nm. Southwest	99% 63% 0% 0%
Freeport, TX	
Estimated Time of First Tropical Storm force winds:	Saturday 09/13/2008 12:30 AM
Duration of Tropical Storm force winds:	12 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	52 MPH / 68 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 06:00 AM
Duration of Hurricane Force Winds:	N/A
Estimated closest point of approach:	29 miles
Forecast Rainfall (3 day total):	9.3 inches
Wind Probabilities (34, 50, 64 knots):	92% 80% 44%
Surge Probabilities (5', 10', 15', 20') 3 nm. East	72% 29% 0% 0%
Grand Isle, LA	
Estimated Time of First Tropical Storm force winds:	Currently above
Duration of Tropical Storm force winds:	N/A
Estimated speed of Maximum Winds (Sustained / Gusts)	44 MPH / 57 MPH
Estimated time of maximum winds:	Friday 09/12/2008 09:30 AM
Duration of Hurricane Force Winds:	N/A
Estimated closest point of approach:	176 miles
Forecast Rainfall (3 day total):	0.4 inches
Wind Probabilities (34, 50, 64 knots):	51% 1% 0%
Surge Probabilities (5', 10', 15', 20') 1 nm. Northwest	100% 0% 0% 0%
Intracoastal City, LA	
Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 03:00 PM
Duration of Tropical Storm force winds:	18 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	44 MPH / 57 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 12:00 AM
Duration of Hurricane Force Winds:	N/A

HURRTRAK Advanced 2009

Hurricane IKE
Location Forecast Analysis Summary Report - Advanced Wind Estimation On

Page 2
09/12/2008 09:00 UTC

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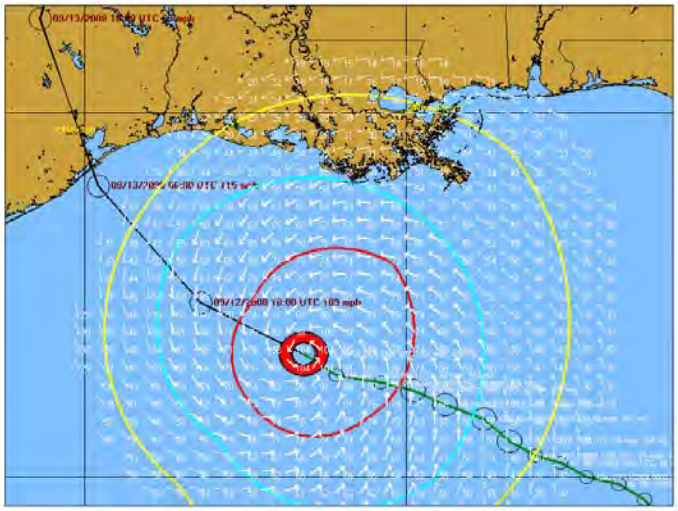
With Narrative Impact Text

Hurricane IKE

Location Forecast Analysis Summary Report - Advanced Wind Estimation On



Hurricane IKE Summary Update	Friday 09/12/2008 09:00 UTC Advisory 45
Current NHC Forecast Predictions	
Maximum Sustained Winds / storm Category:	104 MPH / Category 2
Forward motion:	11 knots towards the Northwest
Hurricane Force winds extend from the center:	105 nautical miles
Tropical Storm winds extend from the center:	240 nautical miles
Minimum Pressure:	953 MB
Storm Position:	26.7N, 91.6W
Estimated Coastal Strike County/Parish:	Galveston, Texas
Watches and Warnings	Hurricane Warning from Baffin Bay, TX to Morgan City, LA
	Tropical Storm Warning from Port Mansfield, TX to Baffin Bay, TX
	Tropical Storm Warning from Morgan City, LA to Miss./Alabama border, AL
San Luis Pass, TX	

HURRTRAK Advanced 2009

Hurricane IKE

Location Forecast Analysis Summary Report - Advanced Wind Estimation On

Page 1
09/12/2008 09:00 UTC

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Hurricane IKE Summary Update	Friday 09/12/2008 09:00 UTC Advisory 45

San Luis Pass, TX is expected to receive a significant impact from Hurricane IKE.

Northerly gale force winds should start affecting the area on Friday, September 12th at 5 PM UTC with storm force winds arriving around 3 AM and Northerly hurricane force winds arriving near 5 AM. The highest wind speeds from Hurricane IKE should occur near 6 AM when top sustained winds, from the North, could reach 90 MPH with gusts near 118 MPH. Winds should decrease below hurricane force shortly thereafter.

Sustained winds will fall below gale force after 1 PM and generally be from the Southwest during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.

Wind damage from Hurricane IKE could include broken glass in doors and windows. Uplift of roof deck and loss of significant roofing material. It may also include collapse of chimney, garage doors and damage to porches and/or carports.

The total rainfall for the San Luis Pass area over the next 3 days is forecast to be 11.3 inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

There is a good chance that the coastal area 2 nm. Northeast of San Luis Pass could experience a storm surge of 10 feet.

Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 05:30 PM
Duration of Tropical Storm force winds:	21 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	90 MPH / 118 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 06:00 AM
Duration of Hurricane Force Winds:	4 hours
Estimated closest point of approach:	15 miles
Forecast Rainfall (3 day total):	11.3 inches
Wind Probabilities (34, 50, 64 knots):	96% 91% 61%
Surge Probabilities (5', 10', 15', 20') 2 nm. Northeast	93% 51% 0% 0%

High Island, TX

High Island, TX is expected to receive a moderate impact from Hurricane IKE.

Northeasterly gale force winds should start affecting the area on Friday, September 12th at 6 PM UTC with storm force winds arriving around 4 AM. The highest wind speeds from Hurricane IKE should occur near 6 AM when top sustained winds, from the East, could reach 67 MPH with gusts near 88 MPH. Winds should decrease below storm force 3 hours later.

Sustained winds will fall below gale force after 1 PM and generally be from the South during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.

Wind damage from Hurricane IKE could include some loss of roofing material, gutters and/or awning and loss of vinyl or metal siding.

The total rainfall for the High Island area over the next 3 days is forecast to be 12.8 inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

There is a good chance that the coastal area 2 nm. Southwest of High Island could experience a storm surge of 10 feet.

Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 06:30 PM
Duration of Tropical Storm force winds:	20 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	67 MPH / 88 MPH
Estimated time of maximum winds:	Saturday 09/13/2008 06:30 AM
Duration of Hurricane Force Winds:	N/A
Estimated closest point of approach:	31 miles
Forecast Rainfall (3 day total):	12.8 inches
Wind Probabilities (34, 50, 64 knots):	98% 89% 62%

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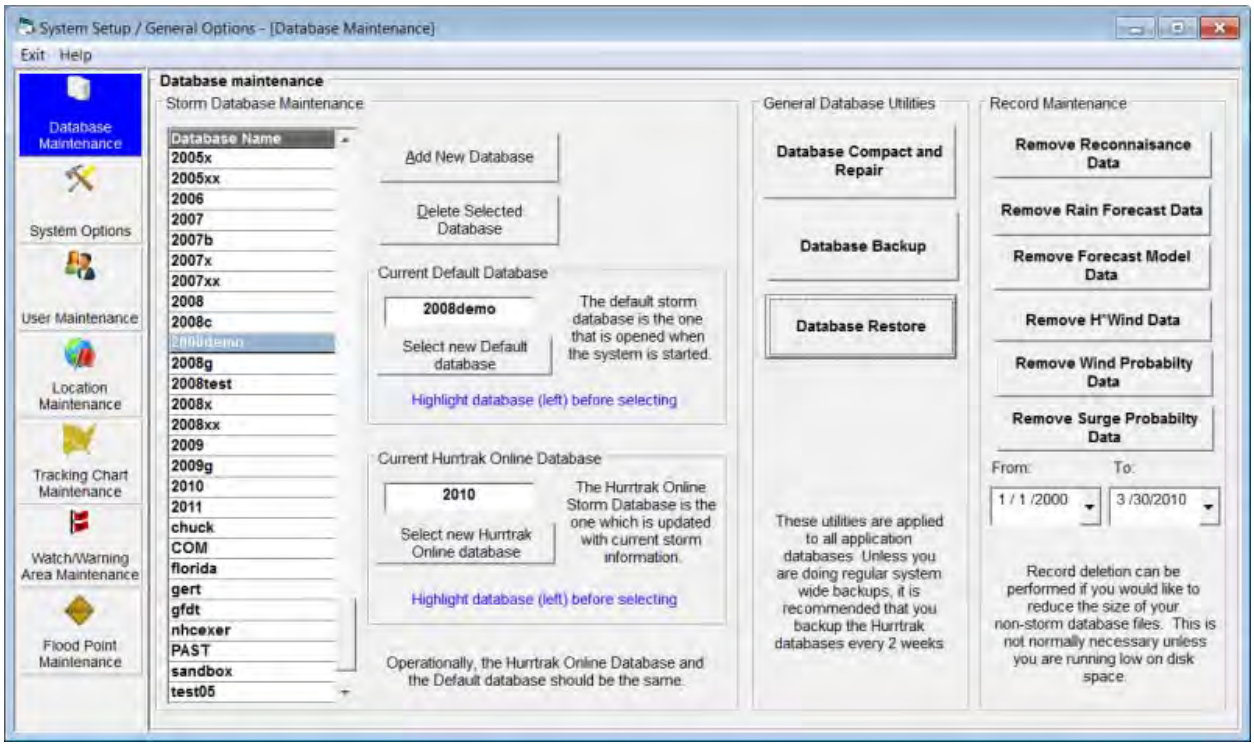
SYSTEM SETUP



This portion of the system, which can be started from the program group or from the tracking program, allows the user to set up and maintain some of the global system parameters as well as take care of database maintenance. This is especially important in network installations as these are the settings that ALL users will share. Individual user preferences are maintained in the Tools-Options function, as shown on page 56. There are 7 system setup options available:

- Database Maintenance
- System Options
- User Maintenance
- Location Maintenance
- Tracking Chart maintenance
- Watch and Warning Area Maintenance
- Flood Point Maintenance

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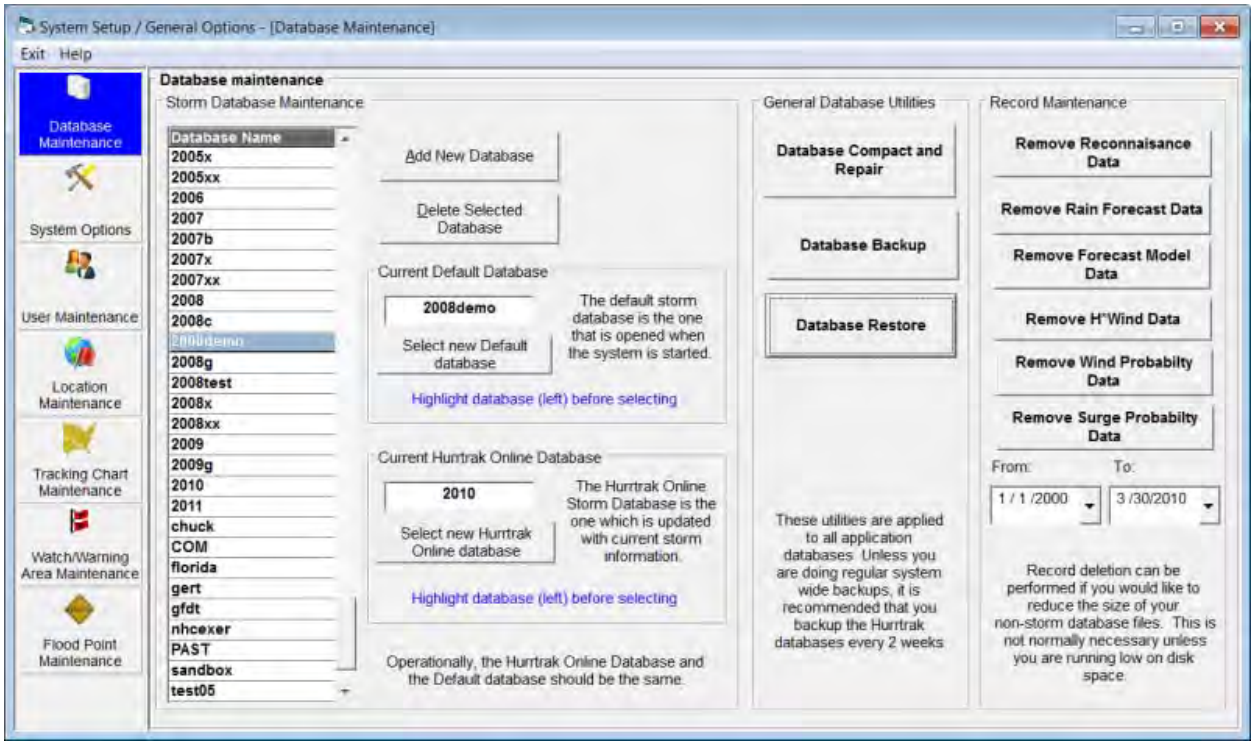
System Preference Setup

Database Maintenance



This option allows the user to create or delete storm databases as well as establishing the default and Hurrtrak Online Database. To establish a new database, select the **Add New Database** option and then change the database name. To make a database the current default, highlight the database name and select the **'Select new default database'** option. To select which database you want Hurrtrak Online updates to be applied to, again highlight the database name and select the '**Select new Hurrtrak Online database'** option. For more information on the difference between the default database and the Current Hurrtrak Online Active Database, please review the appendix topic Default vs. Hurrtrak Online Active database on page 328.

It is advised that you create a new database for each Hurricane Season. i.e. 2009, 2010, etc. To add a new database, key in the new name and select the CREATE option. To delete a database and all its content, select that database and the DELETE option.

In addition, you can perform optional database maintenance including database backup / restore and compaction and repair. Finally to reduce the size of some of your databases, you can select the Record Maintenance set of options. More information on those functions is described below:

Database Compact and Repair
This option compresses and repairs the system's databases. It is a utility that reorganizes the databases taking advantage of empty space in the database file. The result should be a smaller database file (.MDB). The compress should be done only when there has been significant activity, especially adding and deleting of records, to the database. Once a week during very active periods and once a month at other times is sufficient.

Database Backup
This option will backup all of the system and storm MS Access (.mdb) files and stores them in a compressed format in a location specified by the user. We recommend an initial and then frequent backups of the system.

Database Restore
This option allows the user to restore the system's MS Access database files from a previous backup.

Remove Reconnaissance Data
This option allows the user to selectively, by date, remove hurricane reconnaissance records from the system. This is suggested when the recon.mdb database begins to get large.

Remove Rain Forecast Data
This option allows the user to selectively, by date, remove rainfall forecast records from the system. This is suggested when the qpf.mdb database begins to get large.**

Remove Forecast Model Data
This option allows the user to selectively, by date, remove hurricane forecast mode records from the system. This is suggested when the model.mdb database begins to get large.

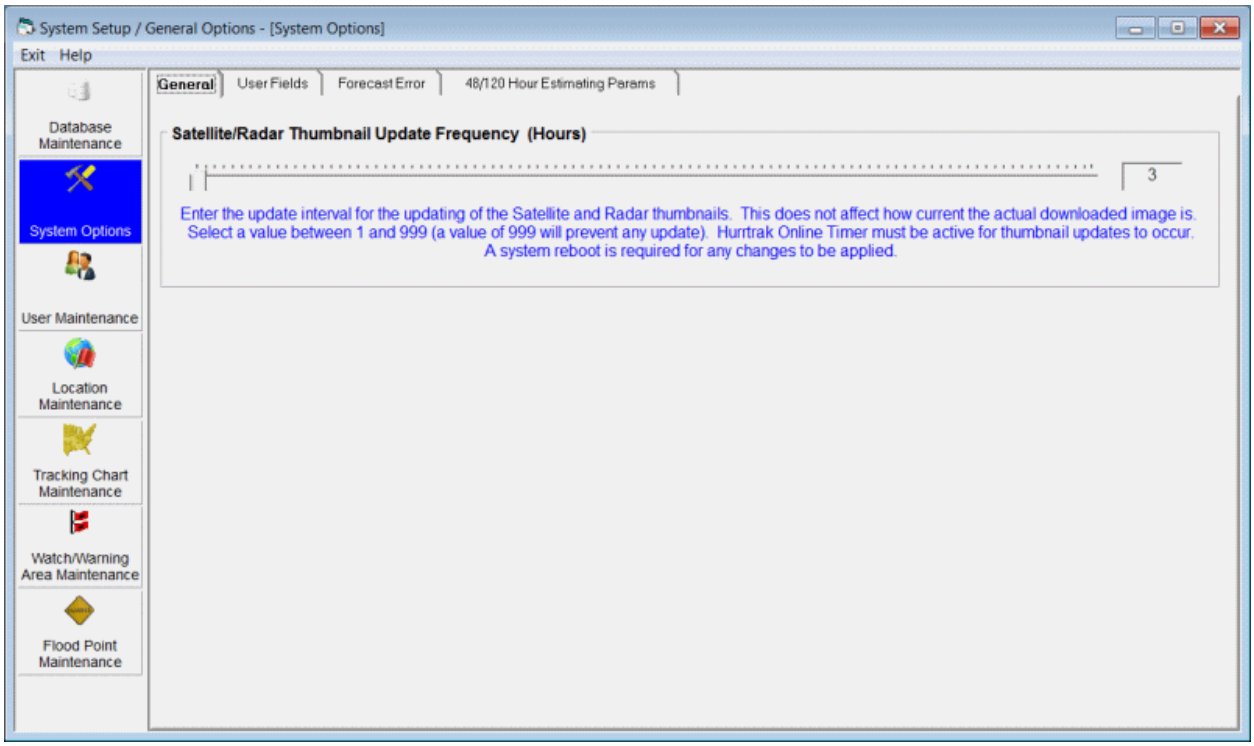
Remove HWIND Data
This option allows the user to selectively, by date, remove Hwind records from the system. This may become necessary as this database can become very large.

Remove Wind Probability Data
This option allows the user to selectively, by date, remove wind probability records from the system. This is suggested when the windprob.mdb database begins to get large.

Remove Surge Probability Data
This option allows the user to selectively, by date, remove surge probability records from the system. This is suggested when the psurge.mdb database begins to get large.

** Note.. the Surge Prob, Wind Prob and rain forecast databases are likely to get large quicker than the other databases.

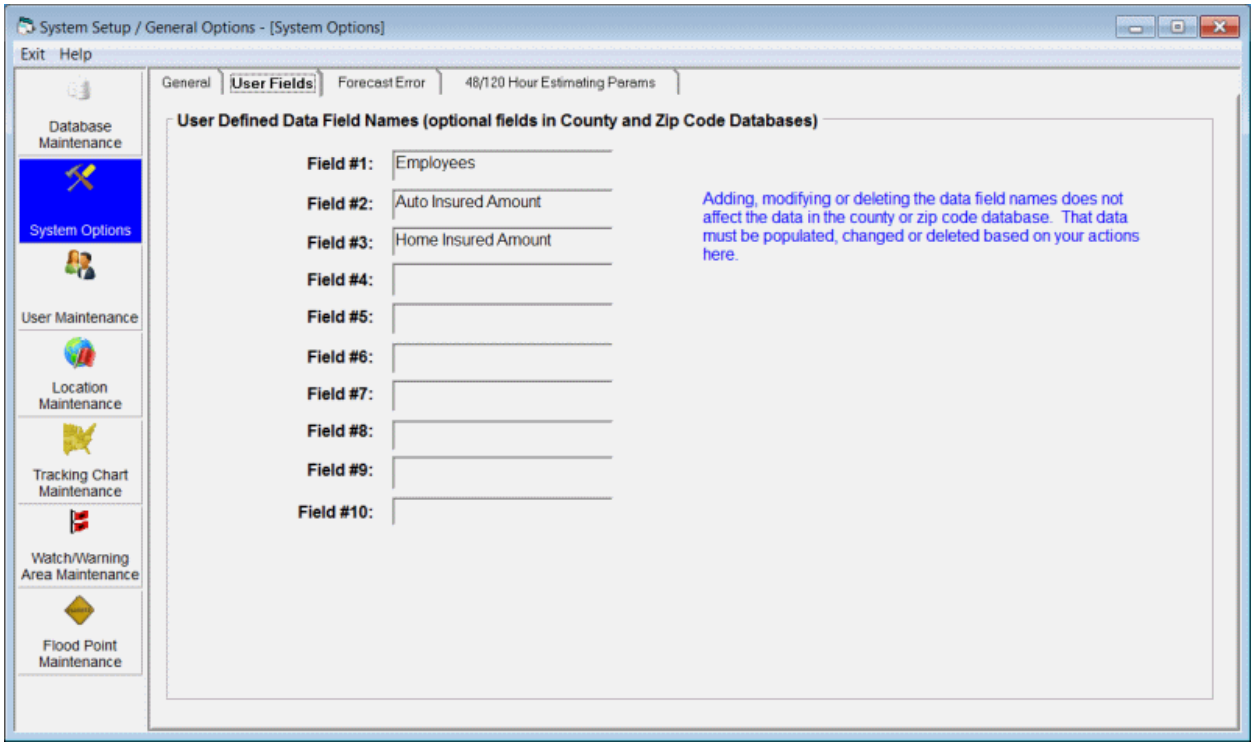
System Options


System Setup / General Options - [System Options]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
General
User Fields
Forecast Error
48/120 Hour Estimating Params
Satellite/Radar Thumbnail Update Frequency (Hours)
3
Enter the update interval for the updating of the Satellite and Radar thumbnails. This does not affect how current the actual downloaded image is.
Select a value between 1 and 999 (a value of 999 will prevent any update). Hurrtrak Online Timer must be active for thumbnail updates to occur.
A system reboot is required for any changes to be applied.

The first tab allows the user to select the update interval for the active satellite and radar thumbnail images. The default is every 6 hours. A selection of 999 will prevent thumbnails from downloading at all… which is a valid option since the system always downloads the latest image regardless of the age of the thumbnail image.

The thumbnails will not update unless you activate the Hurrtrak Online Timer.

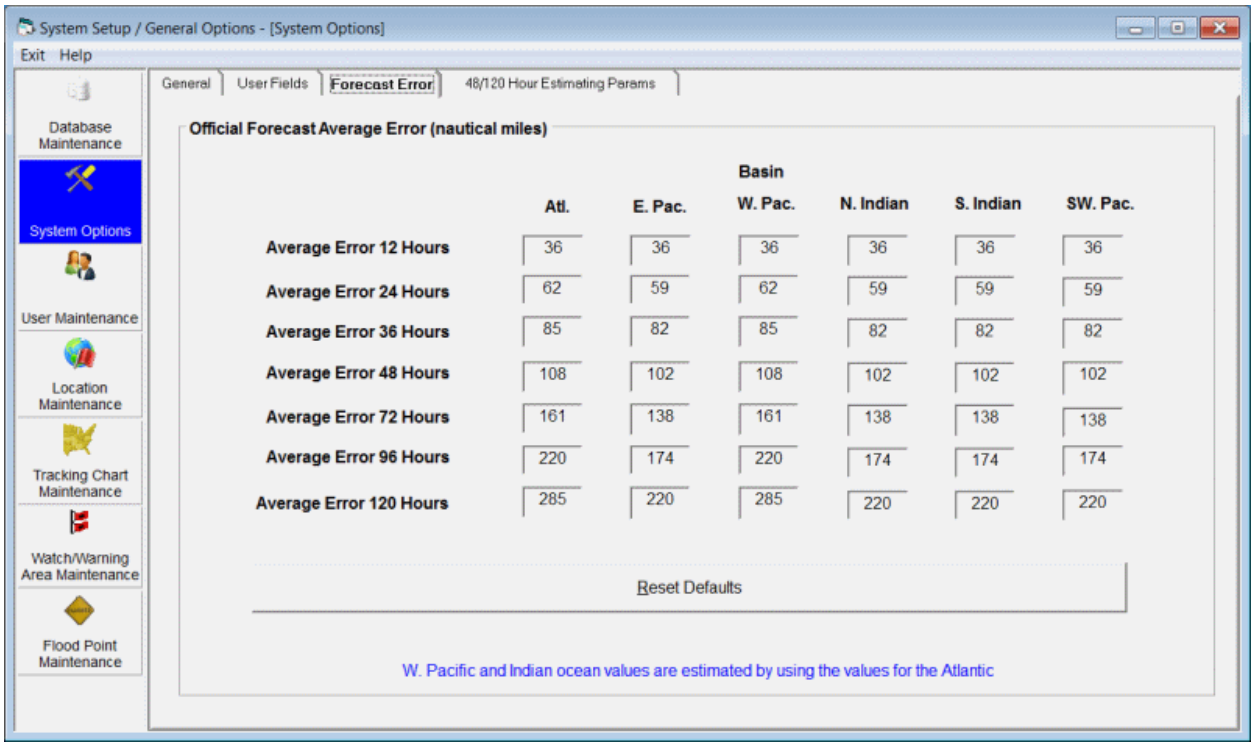
User Fields


System Setup / General Options - [System Options]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
General
User Fields
Forecast Error
48/120 Hour Estimating Params
User Defined Data Field Names (optional fields in County and Zip Code Databases)
Field #1: Employees
Field #2: Auto Insured Amount
Field #3: Home Insured Amount
Field #4:
Field #5:
Field #6:
Field #7:
Field #8:
Field #9:
Field #10:
Adding, modifying or deleting the data field names does not affect the data in the county or zip code database. That data must be populated, changed or deleted based on your actions here.

This page sets the following global system options:

User Defined Data Field Names - There are up to 3 extra user data fields (10 in RM/Pro) that can be defined by the user in the County and Zip Code databases. This option allows the user to enter the name/description of these "extra" data fields. Care must be taken when establishing these, as changing the fields later requires the data in the County and Zip code databases to be reinitialized for this data. For more information, see the County or Zip code data maintenance section.

Forecast Error

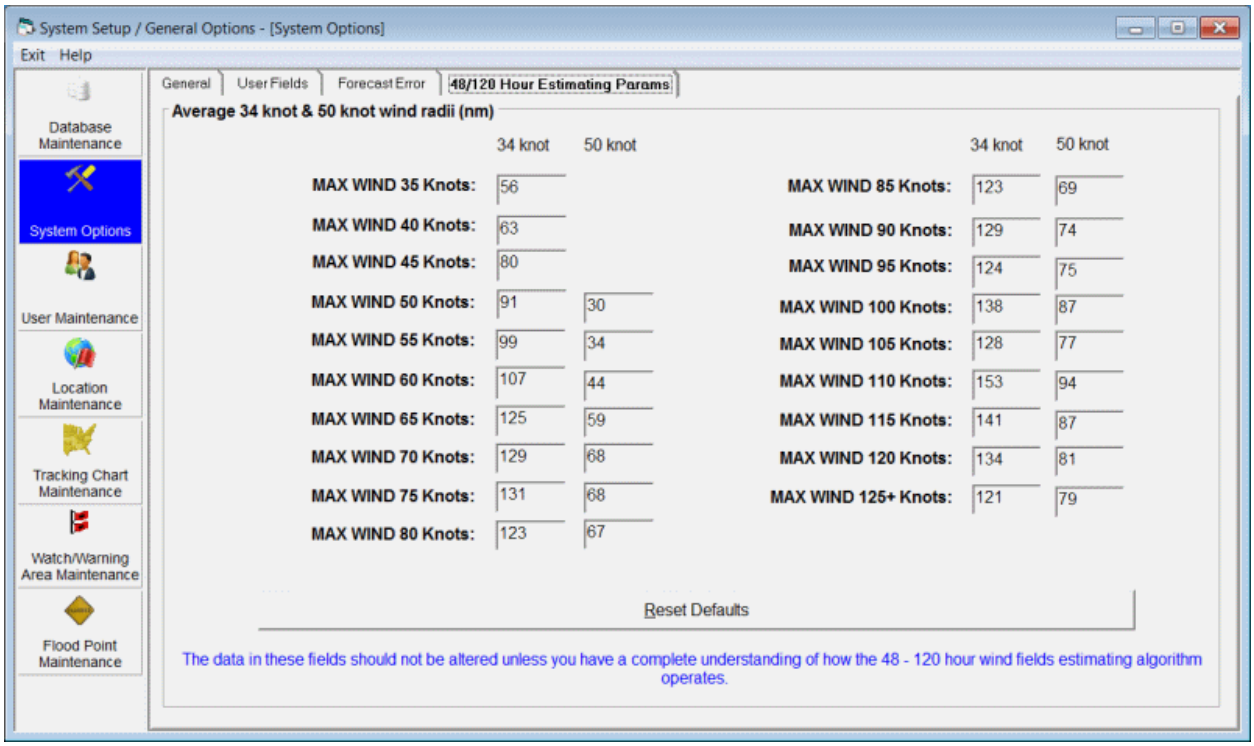

System Setup / General Options - [System Options]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
General
User Fields
Forecast Error
48/120 Hour Estimating Params
Official Forecast Average Error (nautical miles)
Basin
Atl.
E. Pac.
W. Pac.
N. Indian
S. Indian
SW. Pac.
Average Error 12 Hours 36 36 36 36 36 36
Average Error 24 Hours 62 59 62 59 59 59
Average Error 36 Hours 85 82 85 82 82 82
Average Error 48 Hours 108 102 108 102 102 102
Average Error 72 Hours 161 138 161 138 138 138
Average Error 96 Hours 220 174 220 174 174 174
Average Error 120 Hours 285 220 285 220 220 220
Reset Defaults
W. Pacific and Indian ocean values are estimated by using the values for the Atlantic

This page sets the following global system options:

Official Forecast Average Error - These data values correspond to the NHC official forecast average error (10 year average) for the 12, 24, 36, 48, 72, 96 and 120 hour verification times. The Global user is allowed to enter different values for each tropical cyclone basin. #1 - Atlantic, #2 - East Pacific, #3 - West Pacific, #4 - N. Indian Ocean, #5 - S. Indian Ocean, #6 - SW Pacific

The values for the Atlantic and the Eastern Pacific basins are updated yearly by the NHC.. but do not change significantly from year to year.

48 / 120 Hour Estimating Parameters

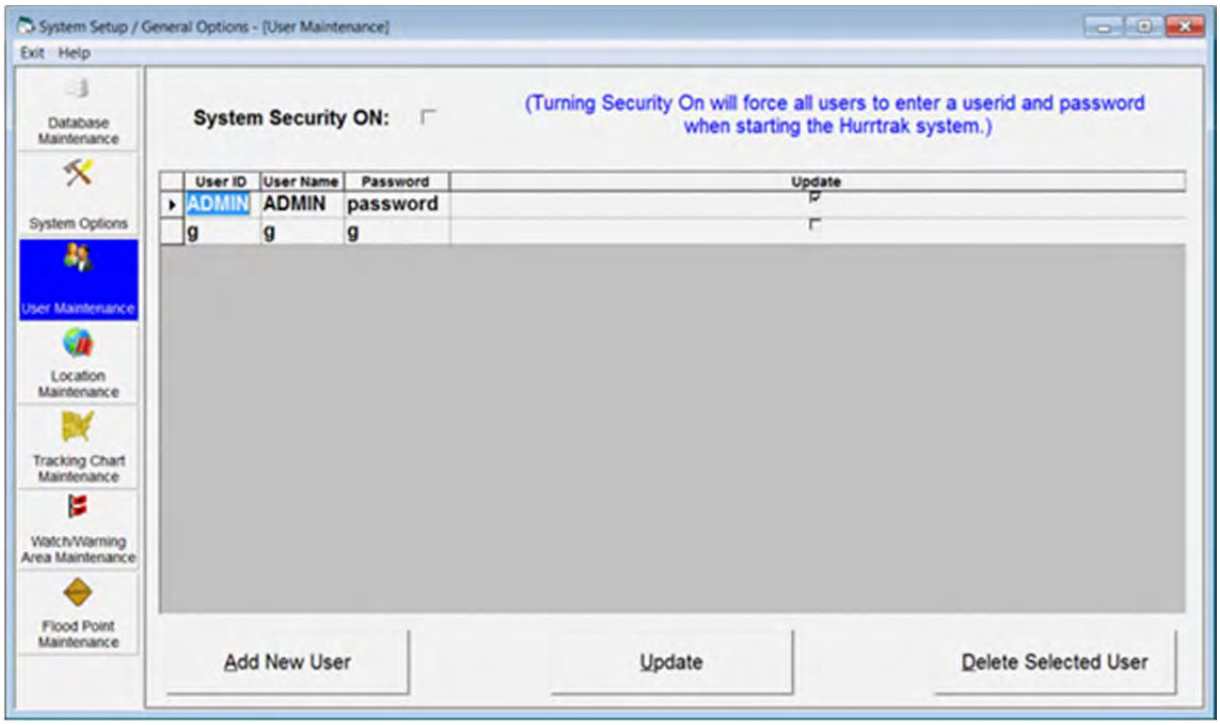

System Setup / General Options - [System Options]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
General
User Fields
Forecast Error
48/120 Hour Estimating Params
Average 34 knot & 50 knot wind radii (nm)
34 knot
50 knot
MAX WIND 35 Knots: 56
MAX WIND 40 Knots: 63
MAX WIND 45 Knots: 80
MAX WIND 50 Knots: 91 30
MAX WIND 55 Knots: 99 34
MAX WIND 60 Knots: 107 44
MAX WIND 65 Knots: 125 59
MAX WIND 70 Knots: 129 68
MAX WIND 75 Knots: 131 68
MAX WIND 80 Knots: 123 67
MAX WIND 85 Knots: 123 69
MAX WIND 90 Knots: 129 74
MAX WIND 95 Knots: 124 75
MAX WIND 100 Knots: 138 87
MAX WIND 105 Knots: 128 77
MAX WIND 110 Knots: 153 94
MAX WIND 115 Knots: 141 87
MAX WIND 120 Knots: 134 81
MAX WIND 125+ Knots: 121 79
Reset Defaults
The data in these fields should not be altered unless you have a complete understanding of how the 48 - 120 hour wind fields estimating algorithm operates.

This page sets the following global system options:

This option allows the user to vary the estimating parameters used to determine the likely areas of 34, 50 and 64 knot winds at the 48, 72, 96 and 120 hour forecast positions.

The parameters represent the average radius of 34 and 50 knot winds by maximum wind speed. They are used in certain circumstances when estimating the 48, 72, 96 and 120 hour 34, 50 and 64 knot wind area. These values should not be altered unless directed by PC Weather Products.

USER Maintenance



This option allows for the setup and maintenance of users. It is only required for networked users who desire security on their system, but is available to single workstation users who desire an extra level of security to the tracking system. Database Security must be "turned on" for user security to apply.

System Security ON: The security option is typically used only for network installations; however, it is available to single workstation users. If selected, it will prompt for a system signon and password when entering most of the tracking applications. NOTE: Be sure you setup a new password for the ADMIN userid before selecting this option.

USER ID - A unique identifier assigned to a user or group of users.

USER NAME - The name of the user or user group (not displayed elsewhere in the system).

PASSWORD - A password assigned to a user or user group.

UPDATE - Select this option to allow the user all system update privileges, except for the ability to run the system setup program.

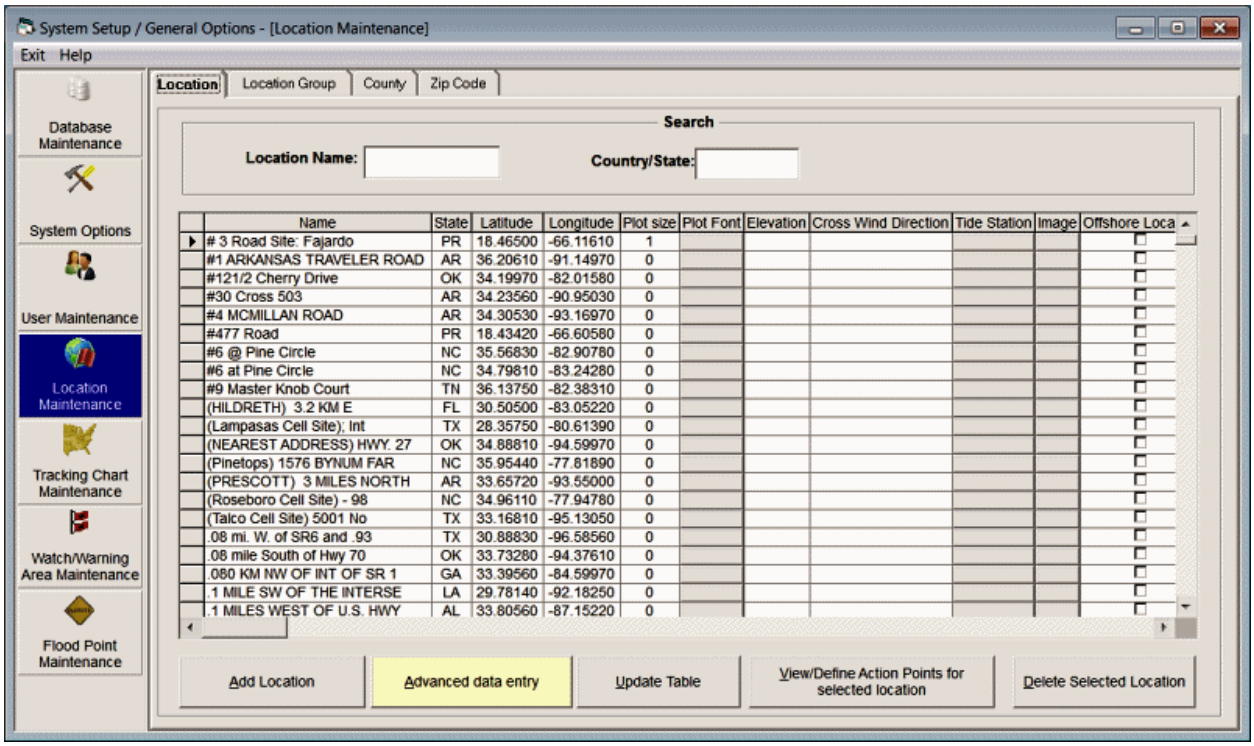
The options available from here are:

To **ADD** a user, select the Add New User option.

To **Change** a user's information, make the required changes in the data table and select Update.

To **DELETE** a user, highlight that user in the list and select the Delete Selected User option. You cannot delete the ADMIN user.

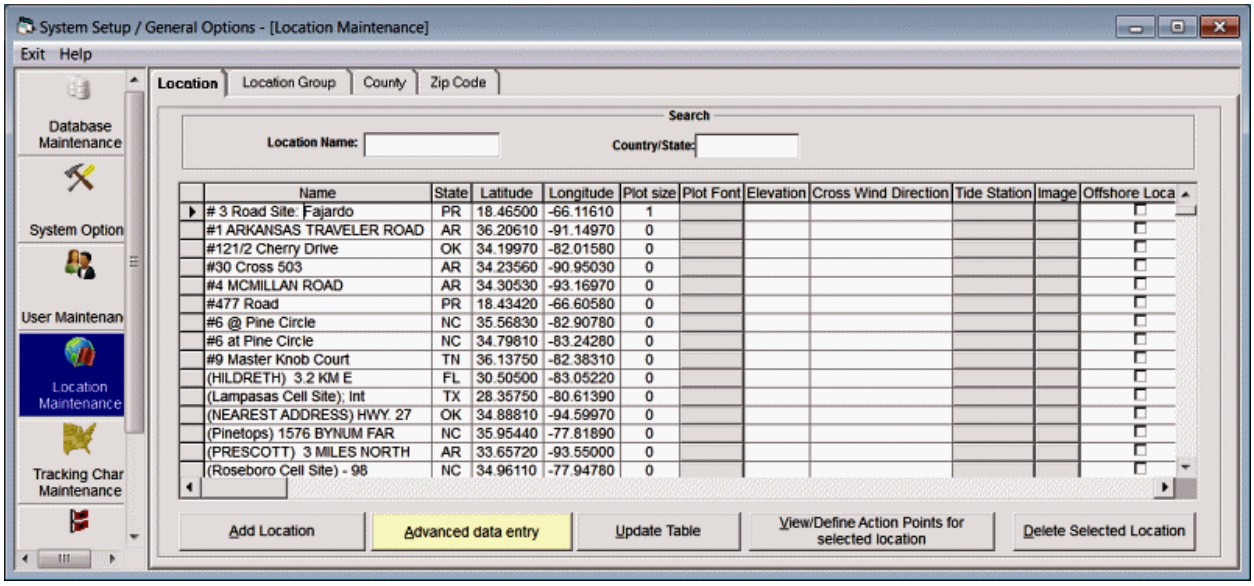
Location Maintenance Options

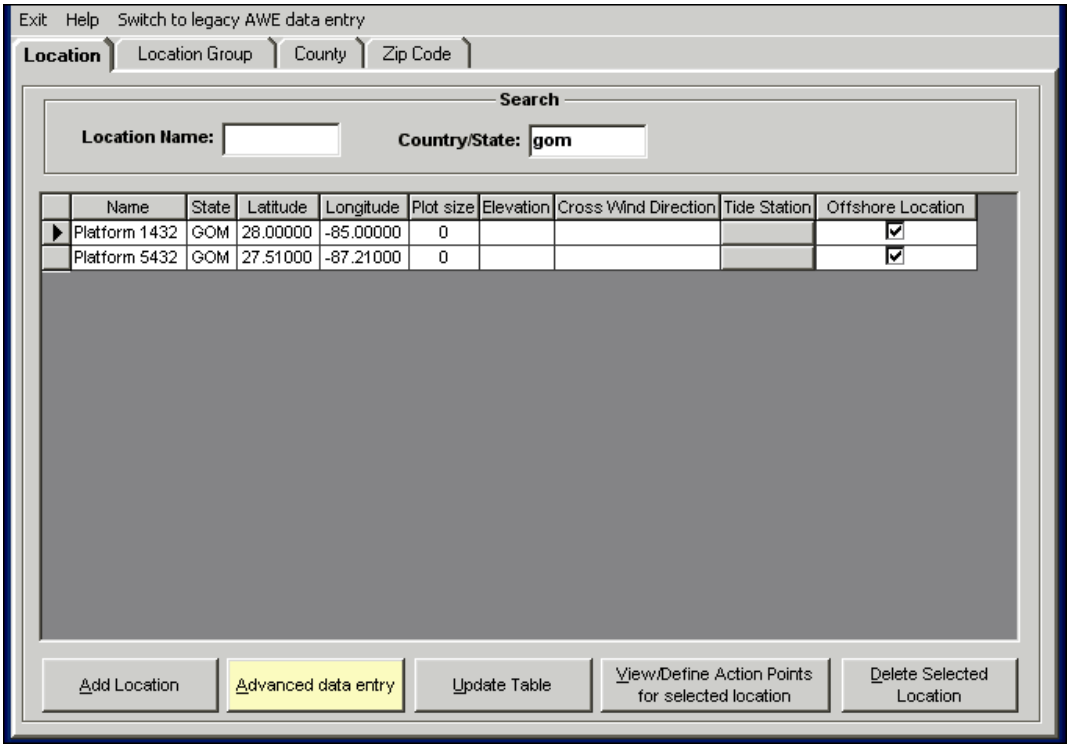

System Setup / General Options - [Location Maintenance]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
Location
Location Group
County
Zip Code
Search
Location Name:
Country/State:
Name State Latitude Longitude Plot size Plot Font Elevation Cross Wind Direction Tide Station Image Offshore Loca
3 Road Site: Fajardo PR 18.46500 -66.11610 1
#1 ARKANSAS TRAVELER ROAD AR 36.20610 -91.14970 0
#121/2 Cherry Drive OK 34.19970 -82.01580 0
#30 Cross 503 AR 34.23560 -90.95030 0
#4 MCMILLAN ROAD AR 34.30530 -93.16970 0
#477 Road PR 18.43420 -66.60580 0
#6 @ Pine Circle NC 35.56830 -82.90780 0
#6 at Pine Circle NC 34.79810 -83.24280 0
#9 Master Knob Court TN 36.13750 -82.38310 0
(HILDRETH) 3.2 KM E FL 30.50500 -83.05220 0
(Lampasas Cell Site); Int TX 28.35750 -80.61390 0
(NEAREST ADDRESS) HWY. 27 OK 34.88810 -94.59970 0
(Pinetops) 1576 BYNUM FAR NC 35.95440 -77.81890 0
(PRESCOTT) 3 MILES NORTH AR 33.65720 -93.55000 0
(Roseboro Cell Site) - 98 NC 34.96110 -77.94780 0
(Talco Cell Site) 5001 No TX 33.16810 -95.13050 0
.08 mi. W. of SR6 and .93 TX 30.88830 -96.58560 0
.08 mile South of Hwy 70 OK 33.73280 -94.37610 0
.080 KM NW OF INT OF SR 1 GA 33.39560 -84.59970 0
.1 MILE SW OF THE INTERSE LA 29.78140 -92.18250 0
.1 MILES WEST OF U.S. HWY AL 33.80560 -87.15220 0
Add Location
Advanced data entry
Update Table
View/Define Action Points for selected location
Delete Selected Location

This portion of the system allows the user to set up and maintain location information. There are 4 options available:

- **Location maintenance**
- **Location Group maintenance**
- **County / Parish maintenance**
- **Zip Code maintenance**

Location ("City") Maintenance


System Setup / General Options - [Location Maintenance]
Exit Help
Database Maintenance
System Option
User Maintenan
Location Maintenance
Tracking Char Maintenance
Location
Location Group
County
Zip Code
Search
Location Name:
Country/State:
Name
State
Latitude
Longitude
Plot size
Plot Font
Elevation
Cross Wind Direction
Tide Station
Image
Offshore Loca
3 Road Site: Fajardo PR 18.46500 -66.11610 1
#1 ARKANSAS TRAVELER ROAD AR 36.20610 -91.14970 0
#121/2 Cherry Drive OK 34.19970 -82.01580 0
#30 Cross 503 AR 34.23560 -90.95030 0
#4 MCMILLAN ROAD AR 34.30530 -93.16970 0
#477 Road PR 18.43420 -66.60580 0
#6 @ Pine Circle NC 35.56830 -82.90780 0
#6 at Pine Circle NC 34.79810 -83.24280 0
#9 Master Knob Court TN 36.13750 -82.38310 0
(HILDRETH) 3.2 KM E FL 30.50500 -83.05220 0
(Lampasas Cell Site); Int TX 28.35750 -80.61390 0
(NEAREST ADDRESS) HWY. 27 OK 34.88810 -94.59970 0
(Pinetops) 1576 BYNUM FAR NC 35.95440 -77.81890 0
(PRESCOTT) 3 MILES NORTH AR 33.65720 -93.55000 0
(Roseboro Cell Site) - 98 NC 34.96110 -77.94780 0
Add Location
Advanced data entry
Update Table
View/Define Action Points for selected location
Delete Selected Location



This option allows the user to establish new or change/delete existing locations. Locations can be anything that has latitude and longitude and size attributes. I.E. a city, island, point, lighthouse, etc.. Remember western longitudes are negative, while eastern longitudes are positive. Selecting the "home locations only" option will display only locations that have been designated as such. The 2nd image above is an example of 2 user-defined oil platforms in the Gulf of Mexico. Note the "OFFSHORE LOCATION" column is checked. This will allow the system to calculate wave heights for this location.

Name - This identifies the location's name.

State - This identifies the location's state or country code (2 or 3 digits).

Latitude - This identifies the location's latitude in decimal degrees. All latitudes north of the equator are positive and those south are negative. Latitudes for the North Atlantic and Eastern Pacific are positive. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. 29 degrees 36 minutes is 29.6 degrees.

Longitude - This identifies the location's longitude in decimal degrees. All Western longitudes are negative, while all Eastern longitudes are positive. Longitude values for the Atlantic and Eastern Pacific locations are negative. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. -78 degrees 54 minutes is -78.9 degrees.

Plot Size - This represents the circular size of this location. This can range anywhere from 0 to 100 nautical miles. A zero value will not draw any circle, thus being well suited for geographical landmarks like points, bays, etc. Other values will draw circles or points depending on the size of the location and size of the map they are plotted on.

Plot Font – This option allows the user to specify the font type, size and color which will be used when plotting this locations name on a tracking map. It overrides the location group and default location fonts. It can be changed by clicking on it and can be cleared by selecting the SHIFT key and clicking on it.

Elevation – This indicates the location's elevation above mean sea level in feet. It is only used by the SLOSH report function and supersedes the elevation calculated by the DEM (digital elevation model) data included with the system.

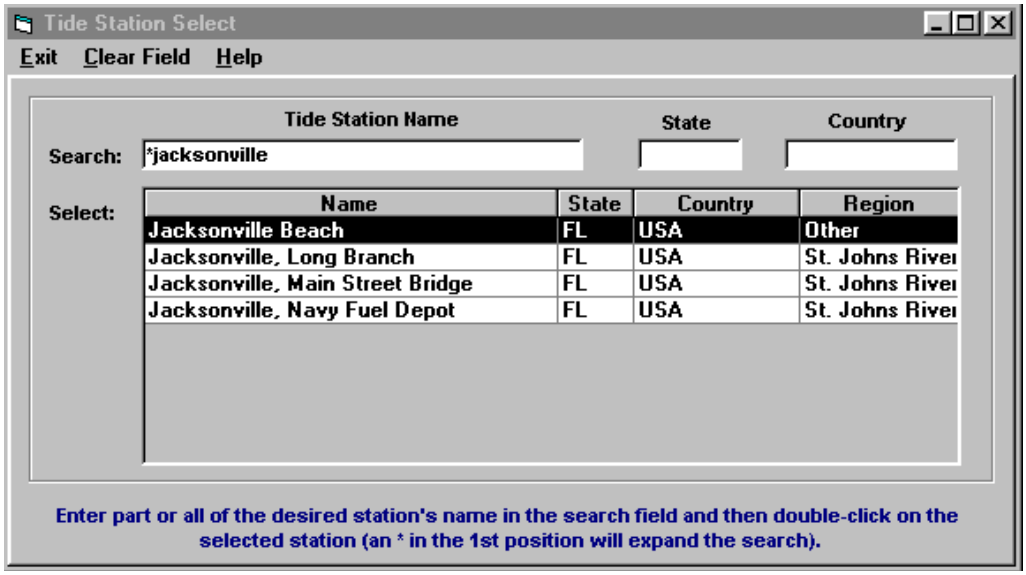
Cross Wind Direction – This field can be used in 2 different ways. If a coastal location, this can be used to identify the wind direction that typically causes the most flooding. For example, in Savannah a direct East wind (090 degrees) is the direction that flooding occurs. In Panama City, FL, the direction is more like SSW or 200 degrees. This is used in the detail location reports when calculating onshore wind flow and also the location report flood index graph. If this is an airport location, this field can be used to identify the cross wind direction. i.e. a 360 runway would have the max cross wind from 270 or 090. Either value can be used. This will then generate the cross runway component of wind on detailed "hourly" reports.

If the Legacy AWE menu option is selected the following additional field is displayed.
AWE Location - This indicates whether this location "qualifies" for Advanced Wind Estimation. If information has been added via the advanced data entry option, this option will be checked. This is a read only indicator.

Image – This field allows the user to identify a web or local image file to the system which is used when exporting report data to Google Earth. For more information, see the appendix topic Webcam / Location Images on page 330.

Tide Station - This identifies the tide station associated with this location. To associate a location to a tide station, click on this data cell. The user will then be presented with the tide selection update window shown on the next page.

Offshore Location - This identifies the location as a fixed offshore location, such as an oil platform, etc. When checked, the system will include wave height calculations in the summary and detailed impact report for this location.



The options available from here are:

To **ADD** a location, select the Add Location option.

To **Enter advanced information** about this location, select the Advanced data entry option (see next page). One of two possible entry forms will be presented.

To **Change** a location's information, make the required changes in the data table and select Update Table.

To **Define Action Points**, highlight that location in the list and select the View/Define Action Point option on page 195.

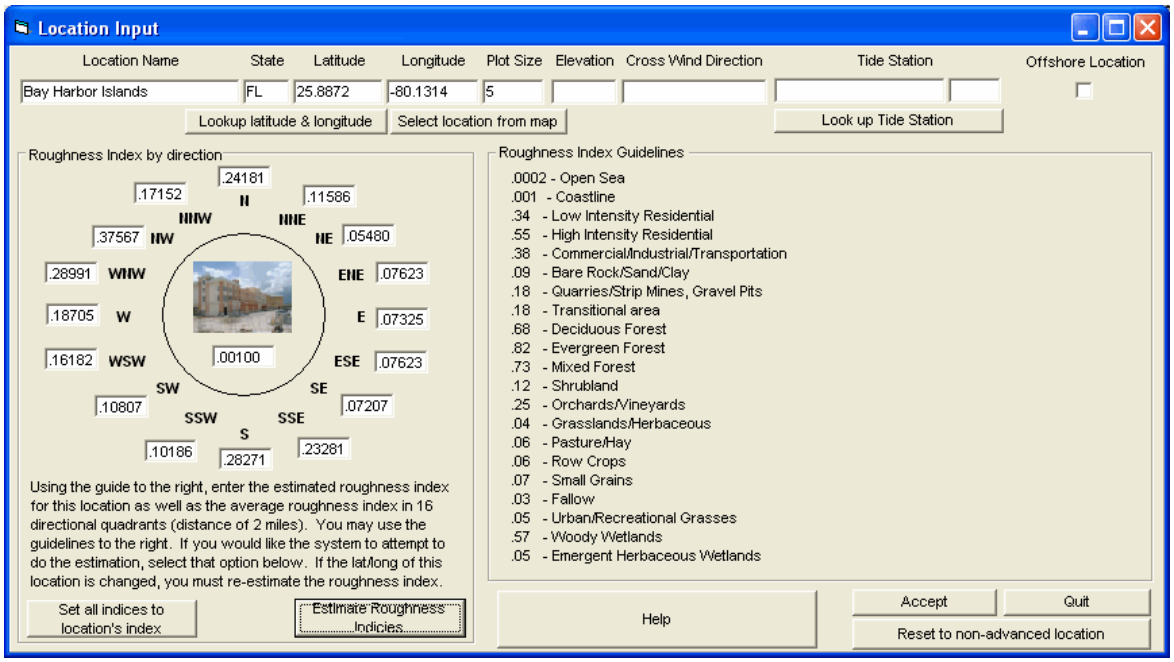
To **DELETE** a location group, highlight that location in the list and select the Delete option.

** Note: you can quickly find a location by using the search fields

Advanced Location Data Entry (Default)

Data entry on this form should be considered with extreme care as it can result in lowering the estimated wind speeds significantly for this location on all reports (Advanced Wind Estimation).

The following is the "default" / new AWE data entry form. Generally you will not change the roughness index values on this form unless you have good knowledge of the locations environment or are in areas outside of the US mainland. Changing the roughness index value will have a significant effect on calculated wind speeds.



This option allows the user to enter "advanced" information about locations. Locations can be anything that has latitude and longitude and size attributes. I.E. a city, island, point, lighthouse, etc. Remember, western longitudes are negative while eastern longitudes are positive.

Location Name - This identifies the location's name.

State - This identifies the location's state or country code (2 or 3 digits).

Latitude - This identifies the location's latitude in decimal degrees. All latitudes north of the equator are positive and those south are negative. Latitudes for the North Atlantic and Eastern Pacific are positive. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. 29 degrees 36 minutes is 29.6 degrees.

Longitude - This identifies the location's longitude in decimal degrees. All Western longitudes are negative, while all Eastern longitudes are positive. Longitude values for the Atlantic and Eastern Pacific locations are negative. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. -78 degrees 54 minutes is -78.9 degrees.

Plot Size - This represents the circular size of this location. This can range anywhere from 0 to 100 nautical miles. A zero value will not draw any circle, thus being well suited for geographical landmarks like points, bays, etc. Other values will draw circles or points depending on the size of the location and size of the map they are plotted on.

Elevation – This indicates the location's elevation above mean sea level in feet. It is only used by the SLOSH report function and supersedes the elevation calculated by the DEM (digital elevation model) data included with the system.

Cross Wind Direction – This field can be used in 2 different ways. If a coastal location, this can be used to identify the wind direction that typically causes the most flooding. For example, in Savannah a direct East wind (090 degrees) is the direction that flooding occurs. In Panama City, FL, the direction is more like SSW or 200 degrees. This is used in the detail location reports when calculating onshore wind flow and also the location report flood index graph. If this is an airport location, this field can be used to identify the cross wind direction. i.e. a 360 runway would have the max cross wind from 270 or 090. Either value can be used. This will then generate the cross runway component of wind on detailed "hourly" reports.

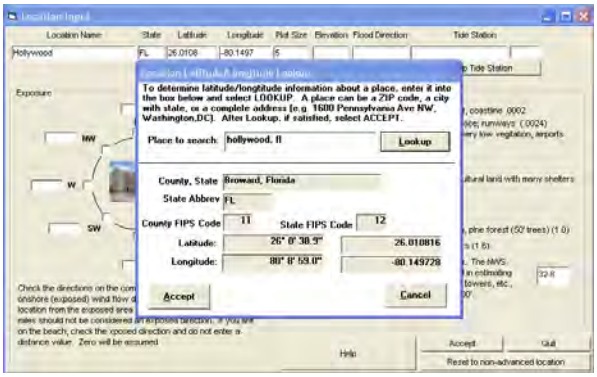
Tide Station - This identifies the tide station associated with this location. To associate a location to a tide station, click on the "Look up Tide Station" option. The user will then be presented with a tide station selection window.

Offshore Location - This identifies the location as a fixed offshore location, such as an oil platform, etc. When checked, the system will include wave height calculations in the summary and detailed impact report for this location

Roughness Index (by direction) - This is an important data element. It describes the exposures that are characteristic for this location. For each of the 16 compass directions, the average roughness index for 2 NM in this direction is shown. These values have been pre-calculated for the default locations. If you add a new location and do not choose the "Estimate Roughness Index" option, the system will prompt the user to automatically calculate the roughness indices upon exit of this screen. If you update a location's position (Lat, Long), the user should select the "estimate roughness indices" option. These values have a significant impact on the wind speeds estimated by Advanced Wind Estimation.

The options available from here are:

To **lookup a location's latitude / longitude**, select the Lookup Latitude and Longitude option.



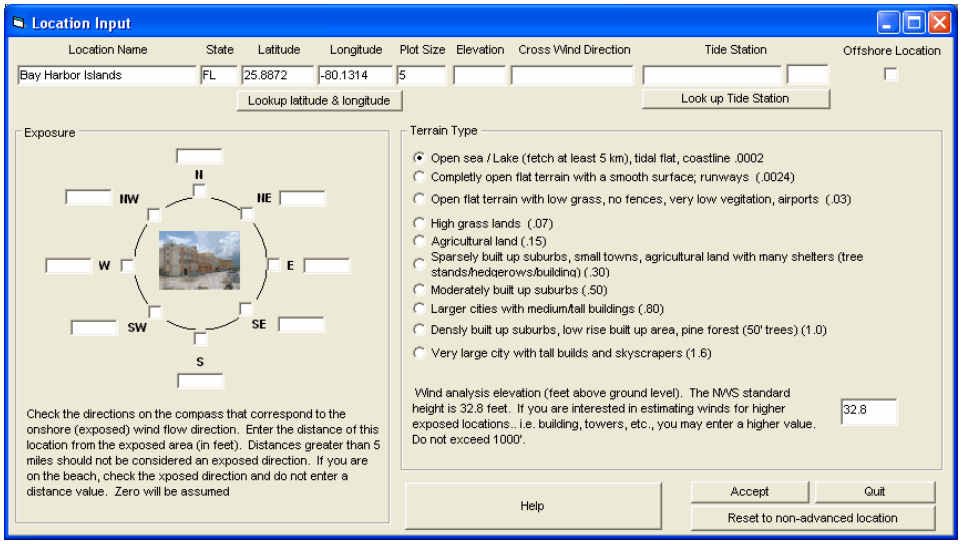
To select a location's lat / lon via a map select the "Select Location from Map" option. You can then simply point at the location on a map.

To **associate a location to a tide station**, select the "Look up Tide Station" option.
To **accept the changes**, select the "Accept" option.
To **reject all changes,** select the "Quit" option.
To **clear all advanced location data for this location**, select the "Reset to non-advanced location" option. This will clear all exposure and terrain type information for this location.

Advanced Location Data Entry (Legacy)

Data entry on this form should be considered with extreme care as it can result in lowering the estimated wind speeds significantly for this location on all reports (Advanced Wind Estimation).

The following is the <u>legacy / prior</u> AWE data entry form. *We recommend you use the previously described "Default" Advanced Data Entry.* It is included to support the prior version's AWE capability. Usage of this form and filling in exposure and terrain type information requires an excellent knowledge of the locations environment. Changing the roughness index value will significantly affect calculated wind speeds.


Location Input
Location Name
State
Latitude
Longitude
Plot Size
Elevation
Cross Wind Direction
Tide Station
Offshore Location
Bay Harbor Islands
FL
25.8872
-80.1314
5
Lookup latitude & longitude
Look up Tide Station
Exposure
N
NW
NE
W
E
SW
SE
S
Check the directions on the compass that correspond to the onshore (exposed) wind flow direction. Enter the distance of this location from the exposed area (in feet). Distances greater than 5 miles should not be considered an exposed direction. If you are on the beach, check the xposed direction and do not enter a distance value. Zero will be assumed
Terrain Type
Open sea / Lake (fetch at least 5 km), tidal flat, coastline .0002
Completly open flat terrain with a smooth surface; runways (.0024)
Open flat terrain with low grass, no fences, very low vegitation, airports (.03)
High grass lands (.07)
Agricultural land (.15)
Sparsely built up suburbs, small towns, agricultural land with many shelters (tree stands/hedgerows/building) (.30)
Moderately built up suburbs (.50)
Larger cities with medium/tall buildings (.80)
Densly built up suburbs, low rise built up area, pine forest (50' trees) (1.0)
Very large city with tall builds and skyscrapers (1.6)
Wind analysis elevation (feet above ground level). The NWS standard height is 32.8 feet. If you are interested in estimating winds for higher exposed locations.. i.e. building, towers, etc., you may enter a higher value. Do not exceed 1000'.
32.8
Help
Accept
Quit
Reset to non-advanced location

This option allows the user to enter "advanced" information about locations. Locations can be anything that has latitude and longitude and size attributes. I.E. a city, island, point, lighthouse, etc. Remember, western longitudes are negative while eastern longitudes are positive.

<u>Location Name</u> - This identifies the location's name.

<u>State</u> - This identifies the location's state or country code (2 or 3 digits).

<u>Latitude</u> - This identifies the location's latitude in decimal degrees. All latitudes north of the equator are positive and those south are negative. Latitudes for the North Atlantic and Eastern Pacific are positive. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. 29 degrees 36 minutes is 29.6 degrees.

<u>Longitude</u> - This identifies the location's longitude in decimal degrees. All Western longitudes are negative, while all Eastern longitudes are positive. Longitude values for the Atlantic and Eastern Pacific locations are negative. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. -78 degrees 54 minutes is -78.9 degrees.

<u>Plot Size</u> - This represents the circular size of this location. This can range anywhere from 0 to 100 nautical miles. A zero value will not draw any circle, thus being well suited for geographical landmarks like points, bays, etc. Other values will draw circles or points depending on the size of the location and size of the map they are plotted on.

Elevation – This indicates the location's elevation above mean sea level in feet. It is only used by the SLOSH report function and supersedes the elevation calculated by the DEM (digital elevation model) data included with the system.

Cross Wind Direction – This field can be used in 2 different ways. If a coastal location, this can be used to identify the wind direction that typically causes the most flooding. For example, in Savannah a direct East wind (090 degrees) is the direction that flooding occurs. In Panama City, FL, the direction is more like SSW or 200 degrees. This is used in the detail location reports when calculating onshore wind flow and also the location report flood index graph. If this is an airport location, this field can be used to identify the cross wind direction. i.e. a 360 runway would have the max cross wind from 270 or 090. Either value can be used. This will then generate the cross runway component of wind on detailed "hourly" reports.

Tide Station - This identifies the tide station associated with this location. To associate a location to a tide station, click on the "Look up Tide Station" option. The user will then be presented with a tide station selection window.

Offshore Location - This identifies the location as a fixed offshore location, such as an oil platform, etc. When checked, the system will include wave height calculations in the summary and detailed impact report for this location.

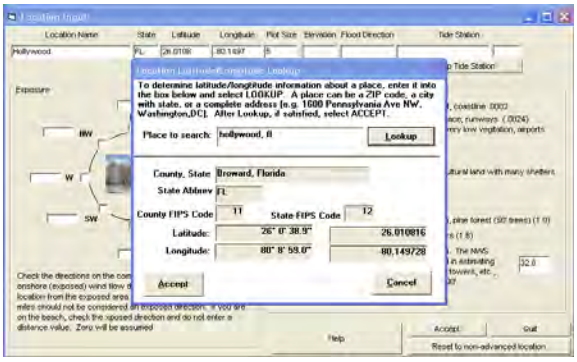
Exposure - This is an important data element. It describes the exposures that are characteristic for this location. For each of the 8 compass directions where there is an open exposure within 5 miles, the user should mark that direction as well as indicate (in feet) the distance from that exposure. Open exposures include large lakes (> 3 miles) or ocean/sea areas. In the example above, we are describing a location that has an open ocean exposure nearby to the east (500 feet) and less of an exposure in other directions (N, S, NE, SE). All western directions are not exposed. This value has an impact on the wind speeds estimated by Advanced Wind Estimation.

Terrain Type - This is also an important data field. It describes the frictional characteristics of the location's area. The user should select the option that best describes the location's environment. It is highly suggested that the user initially "under value" frictional (lower friction) considerations until experience indicates otherwise. This value has a large impact on the estimated wind speeds calculated by Advanced Wind Estimation.

Wind Analysis Elevation - Not to be confused with the location's elevation above sea level. This value indicates the elevation above ground level that the user would like used in Advanced Wind Estimation. A standard of 10 meters is the default; however, you can change this from 5 to 999 feet AGL.

The options available from here are:

To **lookup a location's latitude / longitude**, select the Lookup Latitude and Longitude option.



To **associate a location to a tide station**, select the "Look up Tide Station" option.

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To **accept the changes**, select the "Accept" option.

To **reject all changes,** select the "Quit" option.

To **clear all advanced location data for this location**, select the "Reset to non-advanced location" option. This will clear all exposure and terrain type information for this location.

Define Action Points

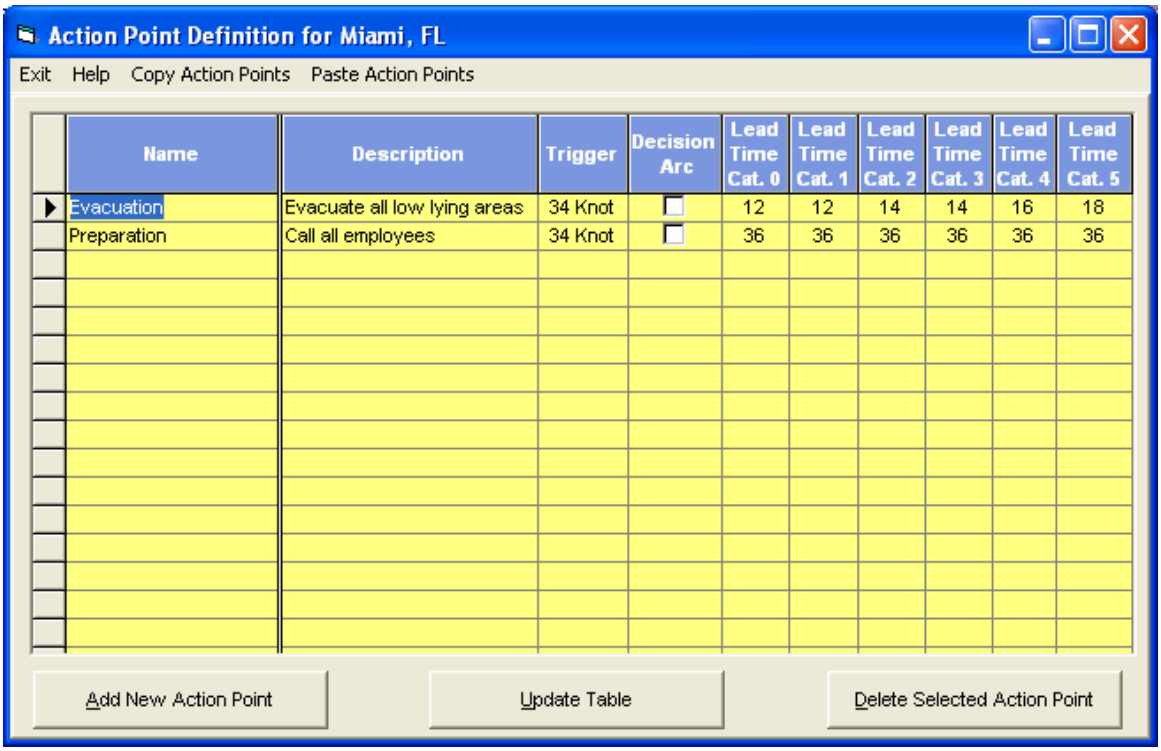

Figure 8

This option allows the user to establish and maintain action points for a specific location or county.

Name - This identifies the action point's name.

Description - This field contains a description of the Action Point. Multi-line input is accepted.

Trigger - The event that triggers the action point. The options are the arrival of 34, 50 or 64 knot winds.

Decision Arc - This option specifies whether the user will ever request to draw a decision arc for this action point. It may not make sense to draw some action points with large lead times.

Lead Times (Cat. 0-5) - These data fields specify the lead time in hours by category of storm. This information, in combination with the trigger data, is all that is needed to determine the timing of the action point.

Functions Available:
Menu Items

Exit - Exits this option.

Help - This Help.

Copy Action Points - This function copies all of the current location's action points to be pasted to another location at a later time.

Paste Action Points - This function takes a previously copied set of action points and pastes them to the current location.

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The options available from here are:

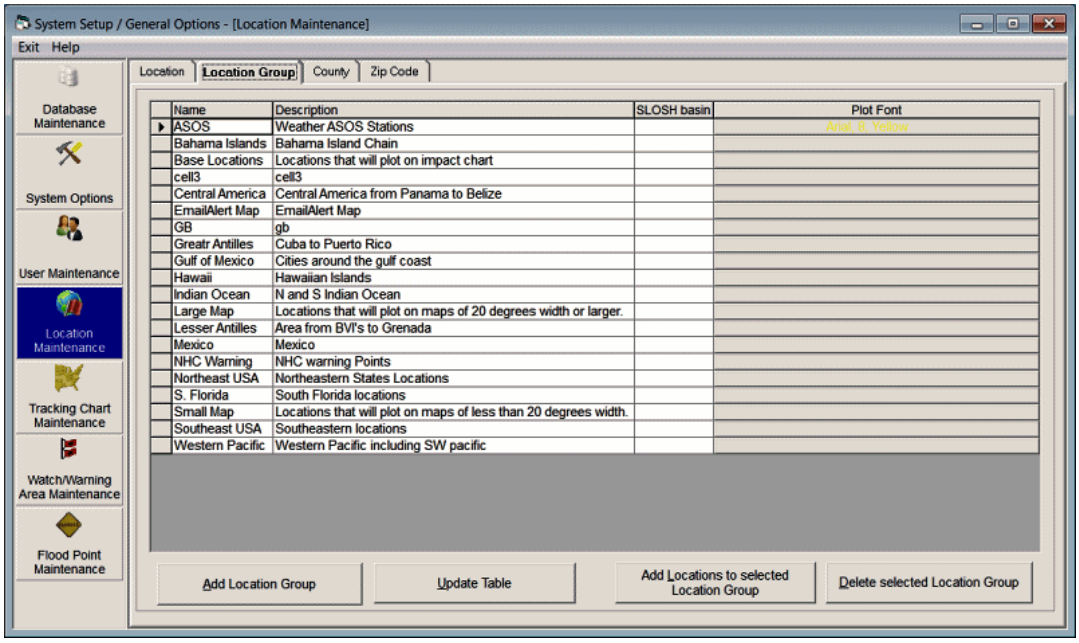
To **ADD** an Action Point, select the Add New Action Point option.

To **Change** an Action Point's information, make the required changes in the data table and select Update Table.

To **DELETE** an Action Point, highlight that Action Point in the list and select the Delete Selected Action Point option.

For more information on the system's decision support capabilities, see page 270.

Location Group



Location groups are a key component of the system as many reports and other analysis are created by location group. It allows the user to establish new or change/delete existing location groups. Location groups are any logical collection of locations. For example, if you are responsible for 10 locations, you can create a location group that has all of those locations in it. The association of location to location groups is done in "Add Locations to selected Location Group" function. There are several pre-defined location groups supplied with the system, some of which cannot be deleted (small map, large map, base locations).

Name - This identifies the location group's name.

Description - A short description of the location group.

SLOSH Basin – This identifies the SLOSH basin that is associated with this location group. It only needs to be specified when the location group is being used to generate a SLOSH report.

Plot Font – This option allows the user to specify the font type, size and color which will be used when plotting the locations in this location group on a tracking map. It overrides the default location font. It can be changed by clicking on it and can be cleared by selecting the SHIFT key and clicking on it.

The options available from this report:

To **ADD** a location group, select the Add Location Group option and modify data fields.

To **Change** a location group's information, make the required changes and select the Update Table option.

To **Add Locations to a Location Group**, highlight that location group in the list and select the Add Location to selected Location Group option. See page 198.

To **DELETE** a location group, highlight that location group in the list and select the Delete selected Location Group option.

NOTE: There is a very special location group called "Base Locations". Associating locations to that group will impact the Tracking Program's Risk Alert tab by including all of the locations in this group on that tab.

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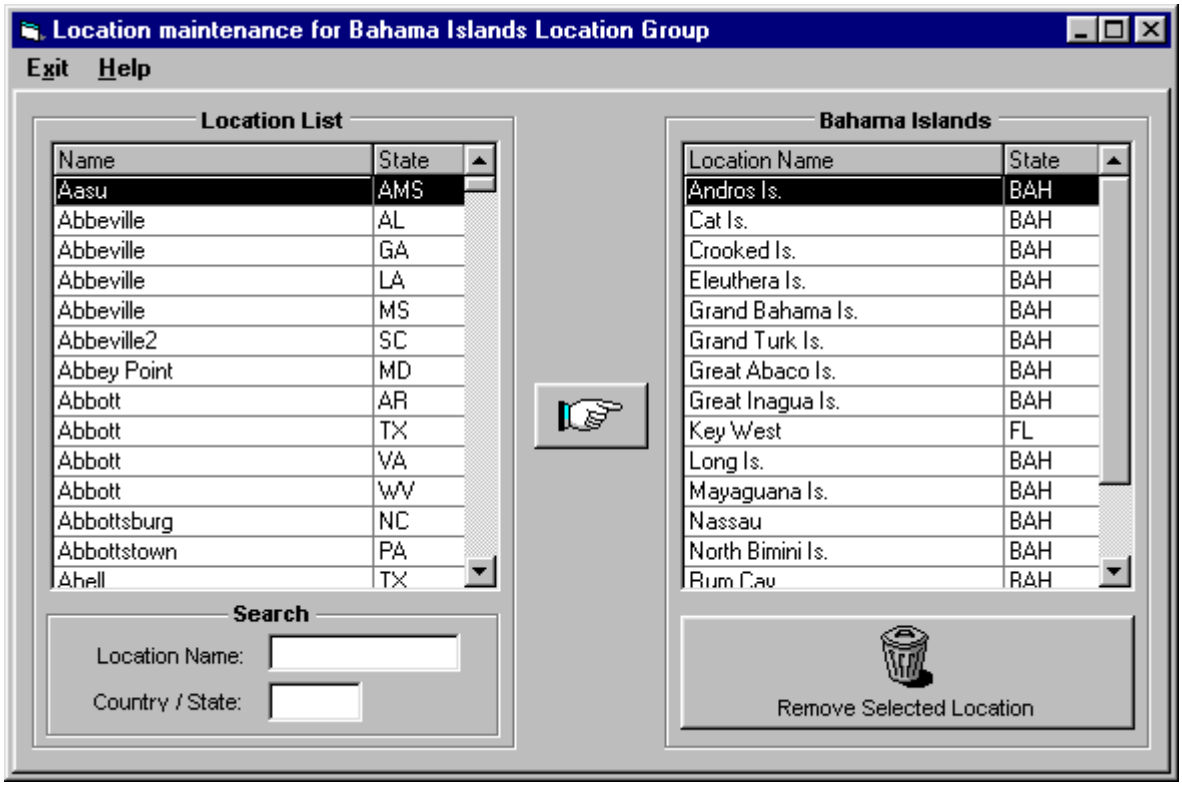
Location Group Association



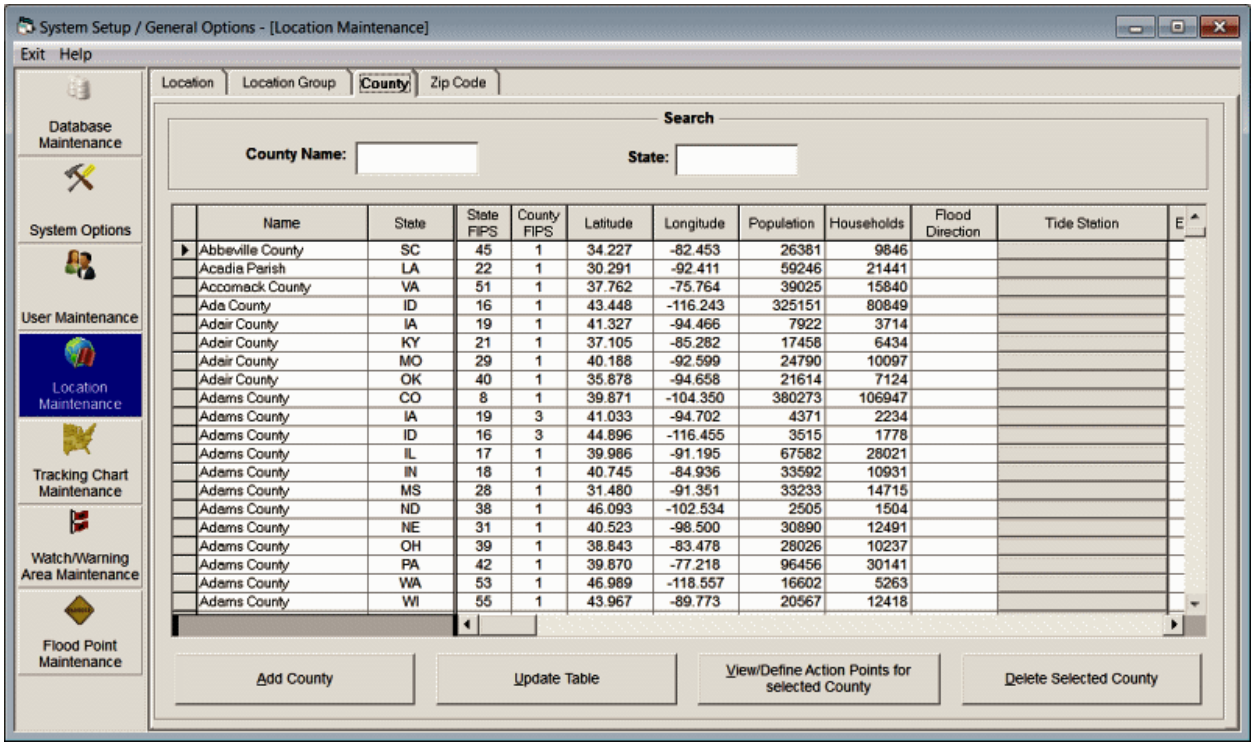
This option allows the user to easily associate and un-associate locations to location groups.

To **add** a location(s) to a location group, simply click on the desired location and click on the "hand" arrow to move it into the group. You may select multiple locations by using the ctrl or shift key. Please hold down the shift key until you have clicked on the “hand”.

To **remove** a location from a group, again click on the desired location in the selected list and click on the Delete selected Location option. This does not remove the location from the location database, but only disassociates it from the location group.

To narrow your view of locations, enter partial names in the location lists search area.

County Maintenance


System Setup / General Options - [Location Maintenance]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
Location
Location Group
County
Zip Code
Search
County Name:
State:
Name
State
State FIPS
County FIPS
Latitude
Longitude
Population
Households
Flood Direction
Tide Station
Abbeville County SC 45 1 34.227 -82.453 26381 9846
Acadia Parish LA 22 1 30.291 -92.411 59246 21441
Accomack County VA 51 1 37.762 -75.764 39025 15840
Ada County ID 16 1 43.448 -116.243 325151 80849
Adair County IA 19 1 41.327 -94.466 7922 3714
Adair County KY 21 1 37.105 -85.282 17458 6434
Adair County MO 29 1 40.188 -92.599 24790 10097
Adair County OK 40 1 35.878 -94.658 21614 7124
Adams County CO 8 1 39.871 -104.350 380273 106947
Adams County IA 19 3 41.033 -94.702 4371 2234
Adams County ID 16 3 44.896 -116.455 3515 1778
Adams County IL 17 1 39.986 -91.195 67582 28021
Adams County IN 18 1 40.745 -84.936 33592 10931
Adams County MS 28 1 31.480 -91.351 33233 14715
Adams County ND 38 1 46.093 -102.534 2505 1504
Adams County NE 31 1 40.523 -98.500 30890 12491
Adams County OH 39 1 38.843 -83.478 28026 10237
Adams County PA 42 1 39.870 -77.218 96456 30141
Adams County WA 53 1 46.989 -118.557 16602 5263
Adams County WI 55 1 43.967 -89.773 20567 12418
Add County
Update Table
View/Define Action Points for selected County
Delete Selected County

This option allows the user to establish new or change/delete existing counties. The latitude and longitude values are the geographical center position of the county. Remember, western longitudes are negative, while eastern longitudes are positive.

Name - This identifies the county's name.

State - This identifies the county's state code (2 digits).

Latitude - This identifies the county's geographical center latitude in decimal degrees. All latitudes north of the equator are positive and those south are negative. Latitudes for the North Atlantic and Eastern Pacific are positive. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. 29 degrees 36 minutes is 29.6 degrees.

Longitude - This identifies the county's geographical center longitude in decimal degrees. All Western longitudes are negative, while all Eastern longitudes are positive. Longitude values for the Atlantic and Eastern Pacific locations are negative. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. -78 degrees 54 minutes is -78.9 degrees.

Population - This represents the population of the county.

Households - This represents the number of households in the county.

Cross Wind Direction – This field can be used in 2 different ways. If a coastal location, this can be used to identify the wind direction that typically causes the most flooding. For example, in Savannah a direct East wind (090 degrees) is the direction that flooding occurs. In Panama City, FL, the direction is more like SSW or 200 degrees. This is used in the detail location reports when calculating onshore wind flow and also the location report flood index graph. If this is an airport location, this field can be

used to identify the cross wind direction. i.e. a 360 runway would have the max cross wind from 270 or 090. Either value can be used. This will then generate the cross runway component of wind on detailed “hourly” reports.

Tide Station - This identifies the tide station associated with this location. To associate a location to a tide station, click on this data cell. The user will then be presented with the tide selection window.

Average Roughness Index - This represents the average roughness index for this county. This is used for the county wind impact report when Advanced Wind Estimation (for counties) is active (ON). This value has been pre-calculated and should be changed with care.

User defined field 1 - This represents numerical data that is defined by the user. In the example shown here, we picked data fields that may be of interest to the insurance industry. If you have a large quantity of user data that you would like to import into the database, it may be best to use MS ACCESS to do the chore rather than hand data entry. Call PC Weather Products for assistance in doing this.

User defined fields 2-3 - This represents numerical data that is defined by the user as described above.

User defined fields 4-10 - This represents numerical data that is defined by the user as described above (RM/PRO).

The options available from here are:

To **ADD** a county, select the Add County option.

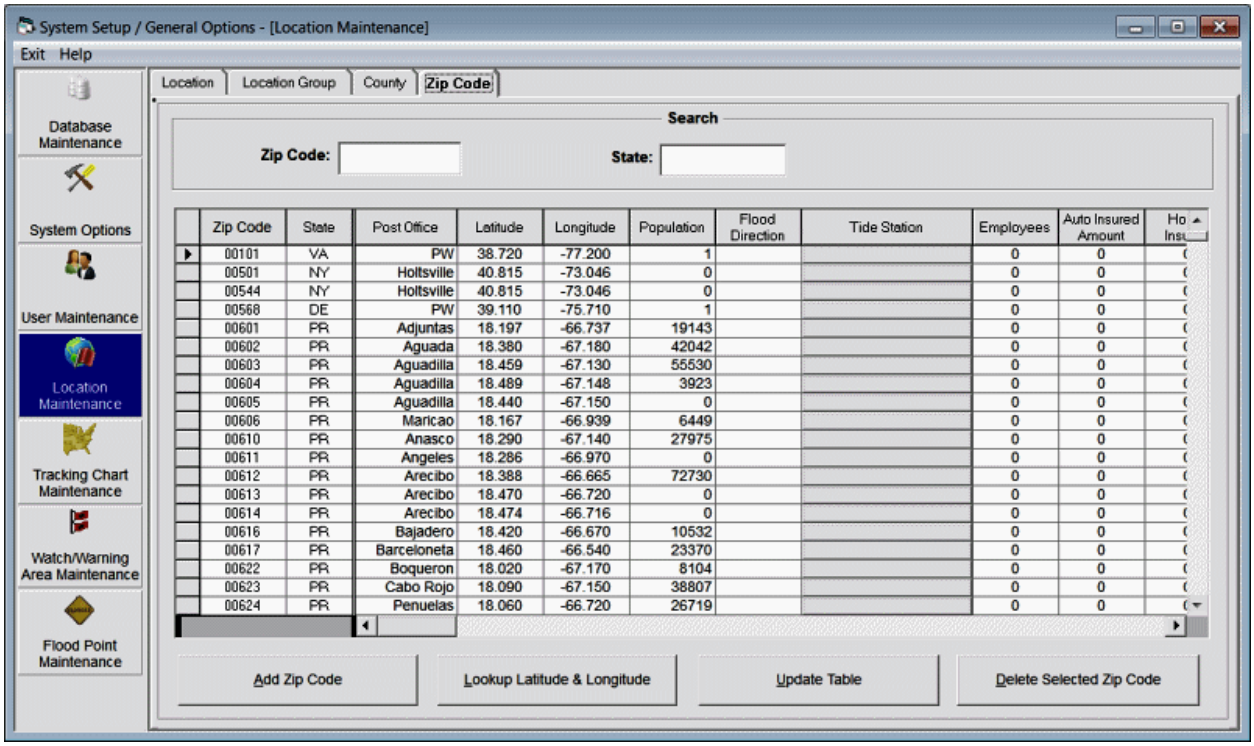
To **Change** a county's information, make the required changes in the data table and select Update Table.

To **Maintain** action points for a county, highlight that county in the list and select the View/Define Action Points option. See page 195.

To **DELETE** a county, highlight that county in the list and select the Delete option.

* Note: To find a county, use the search fields.

Zip Code Maintenance


System Setup / General Options - [Location Maintenance]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
Location
Location Group
County
Zip Code
Search
Zip Code:
State:
Zip Code | State | Post Office | Latitude | Longitude | Population | Flood Direction | Tide Station | Employees | Auto Insured Amount
00101 VA PW 38.720 -77.200 1 0 0
00501 NY Holtsville 40.815 -73.046 0 0 0
00544 NY Holtsville 40.815 -73.046 0 0 0
00568 DE PW 39.110 -75.710 1 0 0
00601 PR Adjuntas 18.197 -66.737 19143 0 0
00602 PR Aguada 18.380 -67.180 42042 0 0
00603 PR Aguadilla 18.459 -67.130 55530 0 0
00604 PR Aguadilla 18.489 -67.148 3923 0 0
00605 PR Aguadilla 18.440 -67.150 0 0 0
00606 PR Maricao 18.167 -66.939 6449 0 0
00610 PR Anasco 18.290 -67.140 27975 0 0
00611 PR Angeles 18.286 -66.970 0 0 0
00612 PR Arecibo 18.388 -66.665 72730 0 0
00613 PR Arecibo 18.470 -66.720 0 0 0
00614 PR Arecibo 18.474 -66.716 0 0 0
00616 PR Bajadero 18.420 -66.670 10532 0 0
00617 PR Barceloneta 18.460 -66.540 23370 0 0
00622 PR Boqueron 18.020 -67.170 8104 0 0
00623 PR Cabo Rojo 18.090 -67.150 38807 0 0
00624 PR Penuelas 18.060 -66.720 26719 0 0
Add Zip Code
Lookup Latitude & Longitude
Update Table
Delete Selected Zip Code

This option allows the user to establish new or change/delete existing zip codes. The latitude and longitude values are the geographical center position of the zip code. Remember western longitudes are negative, while eastern longitudes are positive. The RM/Pro versions of the system use the zip code information in its impact analysis.

Zip Code - This identifies the zip code.

State - This identifies the zip code's state code (2 digits).

Post Office - This represents the post office city associated with the zip code.

Latitude - This identifies the zip code's geographical center latitude in decimal degrees. All latitudes north of the equator are positive and those south are negative. Latitudes for the North Atlantic and Eastern Pacific are positive. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. 29 degrees 36 minutes is 29.6 degrees.

Longitude - This identifies the zip code's geographical center longitude in decimal degrees. All Western longitudes are negative, while all Eastern longitudes are positive. Longitude values for the Atlantic and Eastern Pacific locations are negative. NOTE: DO NOT USE DEGREES AND MINUTES. To convert degrees/minutes to degrees and tenths of a degree, take the number of minutes, divide by 60 and add it to the degree value. I.E. -78 degrees 54 minutes is -78.9 degrees.

Population - This represents the population of the zip code. Note: some population figures are 0 because they are not "inhabited" zip codes.. I.E. Post Offices.

Cross Wind Direction – This field can be used in 2 different ways. If a coastal location, this can be used to identify the wind direction that typically causes the most flooding. For example, in Savannah a direct East wind (090 degrees) is the direction that flooding occurs. In Panama City, FL, the direction is

more like SSW or 200 degrees. This is used in the detail location reports when calculating onshore wind flow and also the location report flood index graph. If this is an airport location, this field can be used to identify the cross wind direction. i.e. a 360 runway would have the max cross wind from 270 or 090. Either value can be used. This will then generate the cross runway component of wind on detailed "hourly" reports.

Tide Station - This identifies the tide station associated with this location. To associate a location to a tide station, click on this data cell. The user will then be presented with the tide selection update window.

Average Roughness Index - This represents the average roughness index for this zip code. This is used for the zip code wind impact report when Advanced Wind Estimation (for zips) is active (ON). This value has been pre-calculated and should be changed with care.

User defined field 1 - This represents numerical data that is defined by the user. In the example shown here, we picked data fields that may be on interest to the insurance industry. If you have a large quantity of user data that you would like to import into the database, it may be best to use MS ACCESS to do the chore rather than hand data entry. Call PC Weather Products for assistance in doing this.

User defined fields 2-10 - This represents numerical data that is defined by the user as described above.

The options available from here are:

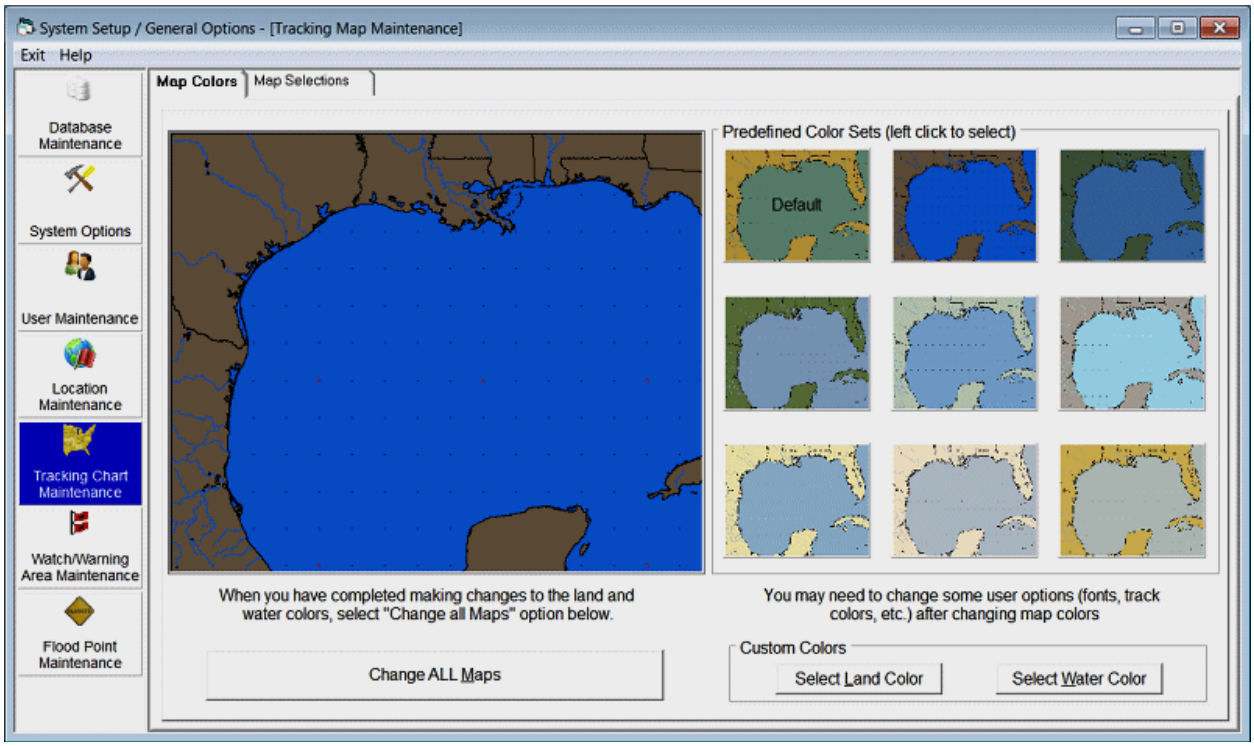
To **ADD** a zip code, select the Add Zip Code option.

To **Change** a zip code's information, make the required changes in the data table and select Update Table.

To **DELETE** a zip code, highlight that zip code in the list and select the Delete option.

* Note: To find a zip code, use the search fields.

Tracking Chart Maintenance


System Setup / General Options - [Tracking Map Maintenance]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
Map Colors
Map Selections
Predefined Color Sets (left click to select)
Default
When you have completed making changes to the land and water colors, select "Change all Maps" option below.
You may need to change some user options (fonts, track colors, etc.) after changing map colors
Change ALL Maps
Custom Colors
Select Land Color
Select Water Color

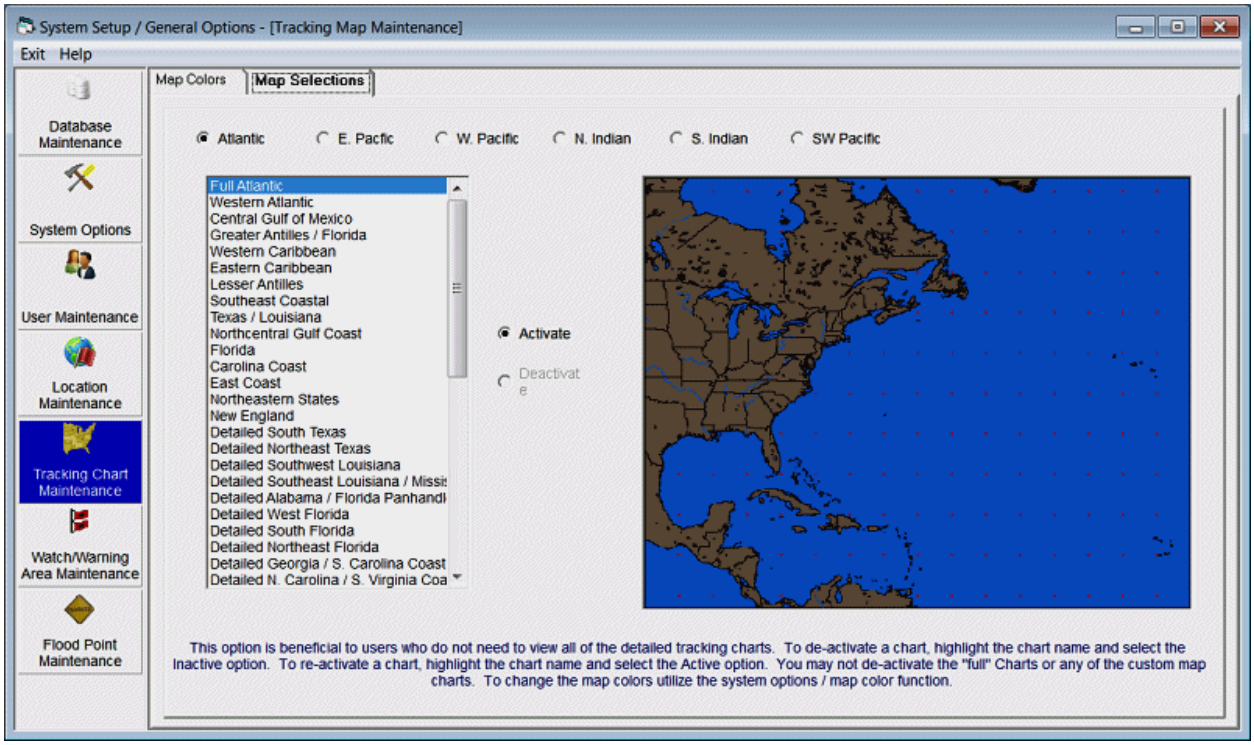
Tracking Chart maintenance has 2 functions.. The first function shown on the image above allows the user to change the default map colors. There are 9 pre-defined color sets as well as the capability to define your own custom colors. The options on this page are:

Land Color - This option allows the user to select the color of the land areas on all the tracking charts.

Water Color - This option allows the user to select the color of the water areas on all the tracking charts.

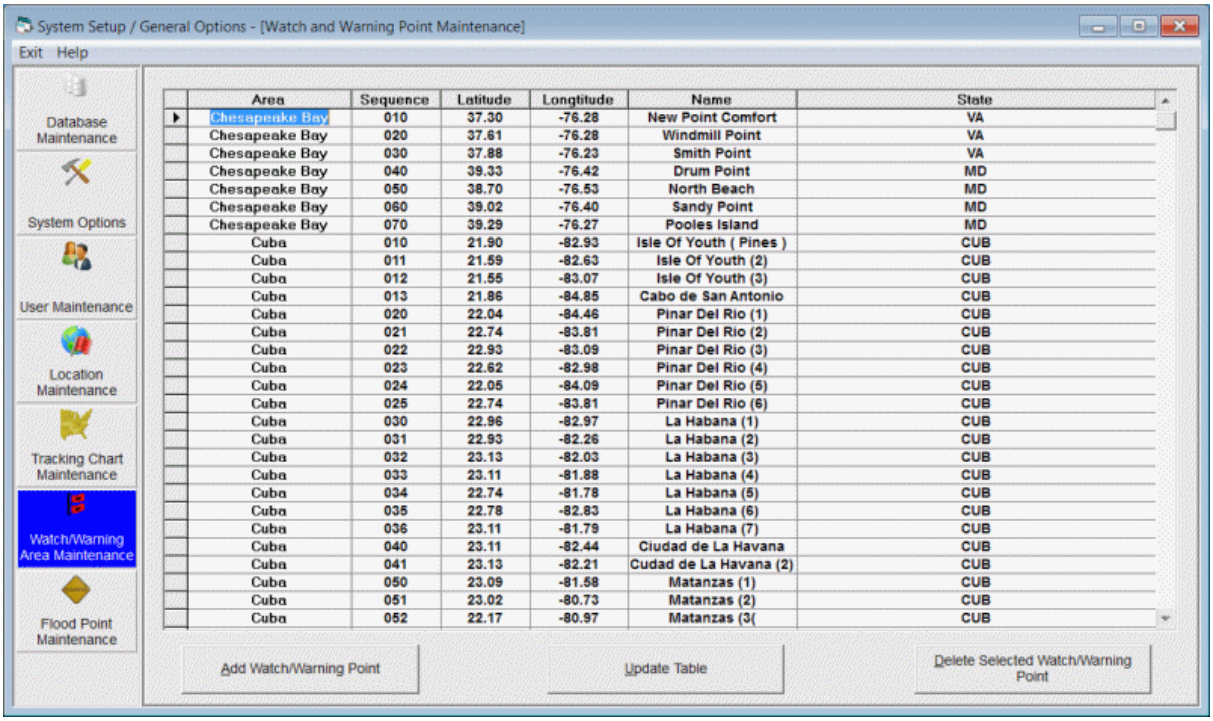
Change ALL Maps - This option will process the color changes to all of the tracking charts on the system.

Selecting one of the pre-defined images will preview what the maps will look like before selecting the “change all maps” option..


System Setup / General Options - [Tracking Map Maintenance]
Exit Help
Database Maintenance
System Options
User Maintenance
Location Maintenance
Tracking Chart Maintenance
Watch/Warning Area Maintenance
Flood Point Maintenance
Map Colors
Map Selections
Atlantic
E. Pacific
W. Pacific
N. Indian
S. Indian
SW Pacific
Full Atlantic
Western Atlantic
Central Gulf of Mexico
Greater Antilles / Florida
Western Caribbean
Eastern Caribbean
Lesser Antilles
Southeast Coastal
Texas / Louisiana
Northcentral Gulf Coast
Florida
Carolina Coast
East Coast
Northeastern States
New England
Detailed South Texas
Detailed Northeast Texas
Detailed Southwest Louisiana
Detailed Southeast Louisiana / Missi
Detailed Alabama / Florida Panhandl
Detailed West Florida
Detailed South Florida
Detailed Northeast Florida
Detailed Georgia / S. Carolina Coast
Detailed N. Carolina / S. Virginia Coa
Activate
Deactivat e
This option is beneficial to users who do not need to view all of the detailed tracking charts. To de-activate a chart, highlight the chart name and select the Inactive option. To re-activate a chart, highlight the chart name and select the Active option. You may not de-activate the "full" Charts or any of the custom map charts. To change the map colors utilize the system options / map color function.

The 2nd Tracking Chart maintenance function allows the user to control what pre-defined maps are available. With the significant number of fixed tracking charts in the system, some users may find it beneficial to be able to de-activate certain charts that they would never use. This option allows the user to be able to do just that. To de-activate a chart, highlight the chart name and select the Inactive option. To re-activate a chart, highlight the chart name and select the Active option. You may not de-activate the "Full Atlantic" chart or any of the custom map charts. Global Tracker users can change tropical cyclone basins by selecting that menu option. To change map colors, utilize the change map colors option.

Watch and Warning Area Point Maintenance



Area	Sequence	Latitude	Longtitude	Name	State
Chesapeake Bay	010	37.30	-76.28	New Point Comfort	VA
Chesapeake Bay	020	37.61	-76.28	Windmill Point	VA
Chesapeake Bay	030	37.88	-76.23	Smith Point	VA
Chesapeake Bay	040	39.33	-76.42	Drum Point	MD
Chesapeake Bay	050	38.70	-76.53	North Beach	MD
Chesapeake Bay	060	39.02	-76.40	Sandy Point	MD
Chesapeake Bay	070	39.29	-76.27	Pooles Island	MD
Cuba	010	21.90	-82.93	Isle Of Youth (Pines)	CUB
Cuba	011	21.59	-82.63	Isle Of Youth (2)	CUB
Cuba	012	21.55	-83.07	Isle Of Youth (3)	CUB
Cuba	013	21.86	-84.85	Cabo de San Antonio	CUB
Cuba	020	22.04	-84.46	Pinar Del Rio (1)	CUB
Cuba	021	22.74	-83.81	Pinar Del Rio (2)	CUB
Cuba	022	22.93	-83.09	Pinar Del Rio (3)	CUB
Cuba	023	22.62	-82.98	Pinar Del Rio (4)	CUB
Cuba	024	22.05	-84.09	Pinar Del Rio (5)	CUB
Cuba	025	22.74	-83.81	Pinar Del Rio (6)	CUB
Cuba	030	22.96	-82.97	La Habana (1)	CUB
Cuba	031	22.93	-82.26	La Habana (2)	CUB
Cuba	032	23.13	-82.03	La Habana (3)	CUB
Cuba	033	23.11	-81.88	La Habana (4)	CUB
Cuba	034	22.74	-81.78	La Habana (5)	CUB
Cuba	035	22.78	-82.83	La Habana (6)	CUB
Cuba	036	23.11	-81.79	La Habana (7)	CUB
Cuba	040	23.11	-82.44	Ciudad de La Havana	CUB
Cuba	041	23.13	-82.21	Cudad de La Havana (2)	CUB
Cuba	050	23.09	-81.58	Matanzas (1)	CUB
Cuba	051	23.02	-80.73	Matanzas (2)	CUB
Cuba	052	22.17	-80.97	Matanzas (3(	CUB

Figure 9

This option allows the user to establish new or change/delete existing watch and warning points. This function should only be utilized by users outside of the USA who want the ability to graphically depict the watch and warning areas. The key fields are...

Area - Watch and warning AREAS group together a contiguous series of geographical points. For example, the US coastline is defined as one watch and warning area, while the Puerto Rico coastline might be defined as another. I.E. There are no points that connect the two areas.

Sequence - The sequence number defines the sequence of geographical points within an area. To define an area from Texas to Maine as in the USA area, the sequence must be "in order" from Brownsville to Bar Harbour.

Latitude - This specifies the latitude, in decimal degrees, of the watch and warning point defined.

Longitude - This specifies the longitude, in decimal degrees, of the watch and warning point defined.

Name - The name field contains the watch and warning point's name. If this is blank, then this point represents a "curve" in the coastline.

State - The state field contains the watch and warning point's state or county code information. If this is blank, then this point represents a "curve" in the coastline.

The options available are:
To **ADD** a watch/warning point, select the Add Watch/Warning Point option.

To **Change** a point's information, make the required changes in the data table and select Update Table.

To **DELETE** a watch and warning point, highlight that row in the list and select the Delete option.
The maintenance of the hurricane watch and warning areas is a rather complex one and typically never needs to be done. If you are only interested in watches and warnings along the US coast and

the National Hurricane Center does not deviate from their "standard" set of watch and warning points, then you will never have to maintain this data set.

There are several circumstances where you will need to maintain this data set.

1. If the NHC uses a non-standard location along the US coastline. For example, if they specify Mobile, AL as an end point for an area of watch or warning, you will need to insert that location into the database. (The other option in this case is to simply specify the nearest standard location to Mobile.)

2. If you need to display the watches and warnings for non US coastline areas, you will need to predefine those watch and warning areas before using this feature. The National Hurricane Center does NOT use a standard set of watch and warning points for areas outside of the US coastline, so any watches and warnings issued for these areas will have to be pre-defined.

The database is organized sequentially by area and sequence number, and contains latitude, longitude and location name information. An ascending sequence within an area defines that area's coastline. In the sample on page 205, we see the set of points that make up the coastline from Everglades City, FL to Key Largo, FL within the USA area. The records that have a location name and state are the predefined NHC watch and warning points. The records in between those points represent the "curves" in the coastline in between the locations. See the chart on page 206 to get a better understanding of what this area of the coastline looks like.

Let's look at a couple of examples of how you could change the data set.

Example 1:
Let say the NHC decided to issue a watch or warning from Big Pine Key to Jacksonville. Since Big Pine Key is not one of the pre-defined points, you would have to insert Big Pine Key into this data set. By examining the above table, you could add that location in area USA with a sequence number of 4115.

Example 2:
If you wanted to create a watch and warning area for all of Cuba, you would have to define the entire coastline of Cuba and then specify the watch and warning locations that you will use. So you may define 25 points that roughly define the coast and then specify 10 geographical locations to be used as the end points of the watch and warning areas. The 25 points and 10 geographical locations are just used as an example.

Watch and warning sample data

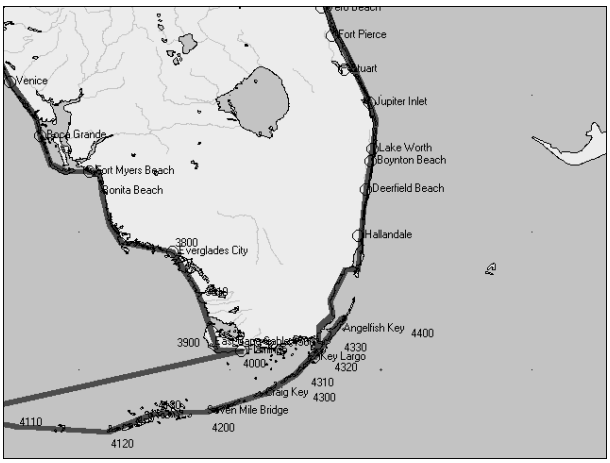
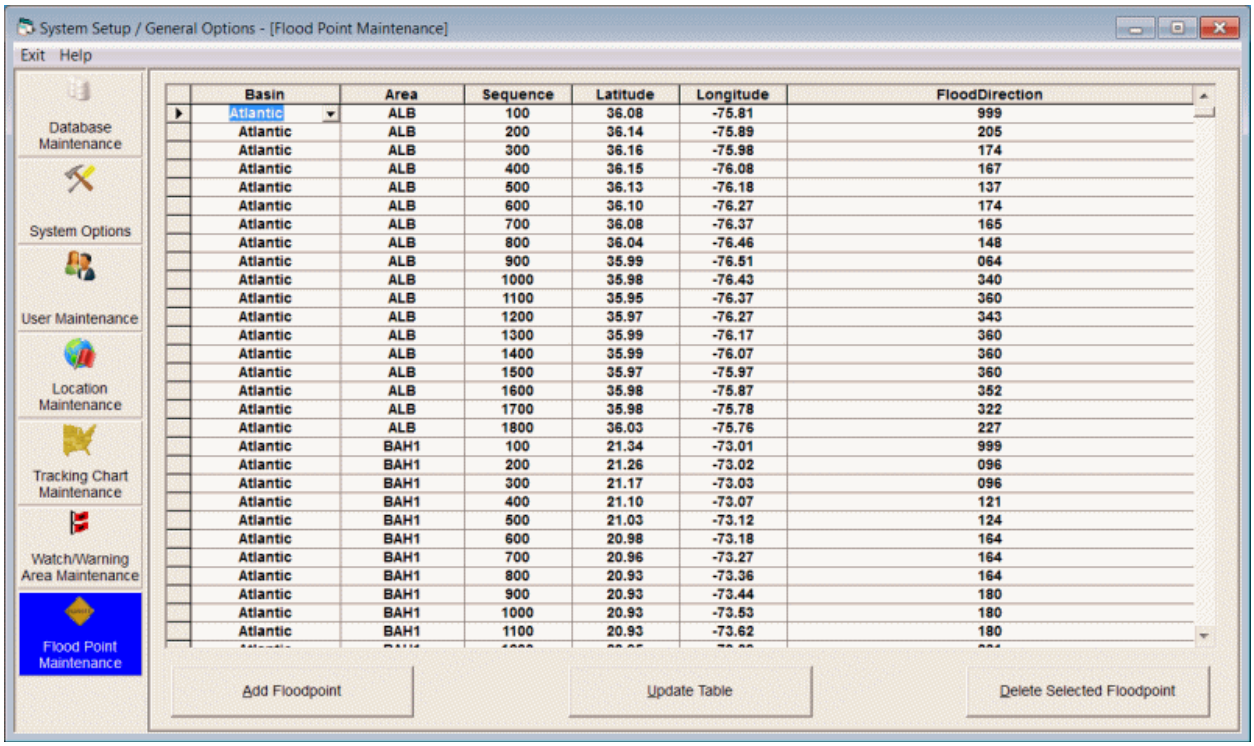


Figure 10

This chart has been annotated to show some of the sequence numbers in the USA watch and warning area. Note how by connecting the points, a rough coastline is defined.

Flood Point Maintenance



Basin	Area	Sequence	Latitude	Longitude	FloodDirection
Atlantic	ALB	100	36.08	-75.81	999
Atlantic	ALB	200	36.14	-75.89	205
Atlantic	ALB	300	36.16	-75.98	174
Atlantic	ALB	400	36.15	-76.08	167
Atlantic	ALB	500	36.13	-76.18	137
Atlantic	ALB	600	36.10	-76.27	174
Atlantic	ALB	700	36.08	-76.37	165
Atlantic	ALB	800	36.04	-76.46	148
Atlantic	ALB	900	35.99	-76.51	064
Atlantic	ALB	1000	35.98	-76.43	340
Atlantic	ALB	1100	35.95	-76.37	360
Atlantic	ALB	1200	35.97	-76.27	343
Atlantic	ALB	1300	35.99	-76.17	360
Atlantic	ALB	1400	35.99	-76.07	360
Atlantic	ALB	1500	35.97	-75.97	360
Atlantic	ALB	1600	35.98	-75.87	352
Atlantic	ALB	1700	35.98	-75.78	322
Atlantic	ALB	1800	36.03	-75.76	227
Atlantic	BAH1	100	21.34	-73.01	999
Atlantic	BAH1	200	21.26	-73.02	096
Atlantic	BAH1	300	21.17	-73.03	096
Atlantic	BAH1	400	21.10	-73.07	121
Atlantic	BAH1	500	21.03	-73.12	124
Atlantic	BAH1	600	20.98	-73.18	164
Atlantic	BAH1	700	20.96	-73.27	164
Atlantic	BAH1	800	20.93	-73.36	164
Atlantic	BAH1	900	20.93	-73.44	180
Atlantic	BAH1	1000	20.93	-73.53	180
Atlantic	BAH1	1100	20.93	-73.62	180

Figure 11

This option allows the user to establish new or change/delete existing watch and warning points. The key fields are...

Basin - Basin identifies the hurricane basin that the flood point "coastline" is in. The Atlantic Basin is 1, East Pacific = 2, West Pacific = 3, N. Indian = 4, S. Indian = 5, SW Pacific = 6

Area - A Flood Point AREA groups together a contiguous series of geographical points. For example, the US coastline is defined as one Flood Point area, while the Puerto Rico coastline might be defined as another. I.E. There are no points that connect the two areas.

Sequence - The sequence number defines the sequence of geographical points within an area. To define an area from Texas to Maine, as in the USA1 area, the sequence must be "in order" from Brownsville to Bar Harbour.

Latitude - This specifies the latitude, in decimal degrees, of the flood point defined.

Longitude - This specifies the longitude, in decimal degrees, of the flood point defined.

Flood Direction - The onshore flood direction for this flood point. I.E. The direction that flooding would "come from". The direction is defined by the compass where East is 090, South is 180, West is 270 and North is 360 (0 is defined as having no value). For most coastal areas, this direction would be perpendicular to the coast. For example, Miami would be 090 (east), Panama City, FL would be 200 (SSW), Galveston, TX would be 135 (SE), etc. There are some cases, like inlets and bays where the flood direction (maximum flooding) is due to funneling of water into the inlet or bay. Tampa Bay is an example of this where its maximum flooding occurs due to a SW flow.

The options available are:

To **ADD** a flood point, select the Add Floodpoint option.

To **Change** a point's information, make the required changes in the data table and select Update Table.

To **DELETE** a flood point, highlight that row in the list and select the Delete Floodpoint option.

The maintenance of the flood point areas is a rather complex one. Luckily, there are only a few circumstances that require you to maintain this data set.

1. If you need to display the flood index for un-analyzed coastal areas. Although, we have "digitized" flood points for all of the large to medium sized coastal areas, including some inland lakes, we have not attempted to analyze every coastal area, like small islands. They present a special problem in that their onshore wind direction in reality is... "all directions". A storm surge coming in from the Southeast may inundate the entire island. You can, however, create a separate "flood" area for a specific island.

2. If you would like to modify the "digitized" flood points. Again, although we have digitized at a fairly detail level, your knowledge of local flood patterns like inlets, rivers, etc., may make it desirable to add more detail to the coastal flood point pattern.

In the sample on page 207, we see some of the flood points that define the coastline of North Carolina within the USA1 area. See the sample chart on page 209 to get a better idea of how this looks for that area.

Example 1:
If you wanted to add Smith Island (Cape Fear) to the flood point data base you would need to add new records with a unique area name. For example:

Area, Seq., Lat., Long, Onshore Flood Direction

SMITH,01,33.88,-78.02,270
SMITH,02,33.89,-78.00,329
SMITH,03,33.90,-77.99,360
SMITH,04,33.89,-77.97,050
SMITH,05,33.90,-77.96,310
SMITH,06,33.91,-77.95,102
SMITH,07,33.89,-77.96,102
SMITH,08,33.87,-77.96,102
SMITH,09,33.86,-77.96,090
SMITH,10,33.85,-77.97,197
SMITH,11,33.86,-77.99,197
SMITH,12,33.86,-78.01,197
SMITH,13,33.88,-78.02,270

define the points for Smith Island. Once these are entered in to the database, Smith Island would then be included in the Flood Point analysis.

Example 2:
If you wanted to include Cape Fear Inlet (river) into the flood point data base you would add new records to the existing USA1 database. For example:

USA1,52700,33.98,-77.92,180
USA1,52701,34.07,-77.93,180
USA1,52702,34.12,-77.93,180
USA1,52703,34.15,-77.95,180
USA1,52704,34.19,-77.96,180
USA1,52705,34.17,-77.97,180
USA1,52706,34.12,-77.95,180
USA1,52707,34.04,-77.95,180
USA1,52708,33.99,-77.95,180
USA1,52709,33.94,-77.98,180
USA1,52800,33.90,-77.95,180

would be inserted into the database in the appropriate sequence. (I have made an assumption that a due South (180) wind flow would result in the largest flooding in Cape Fear Inlet.)

If you modify the flood point database, we would be interested in getting a copy of these additions or changes for possible incorporation into future releases.

Flood Index Sample

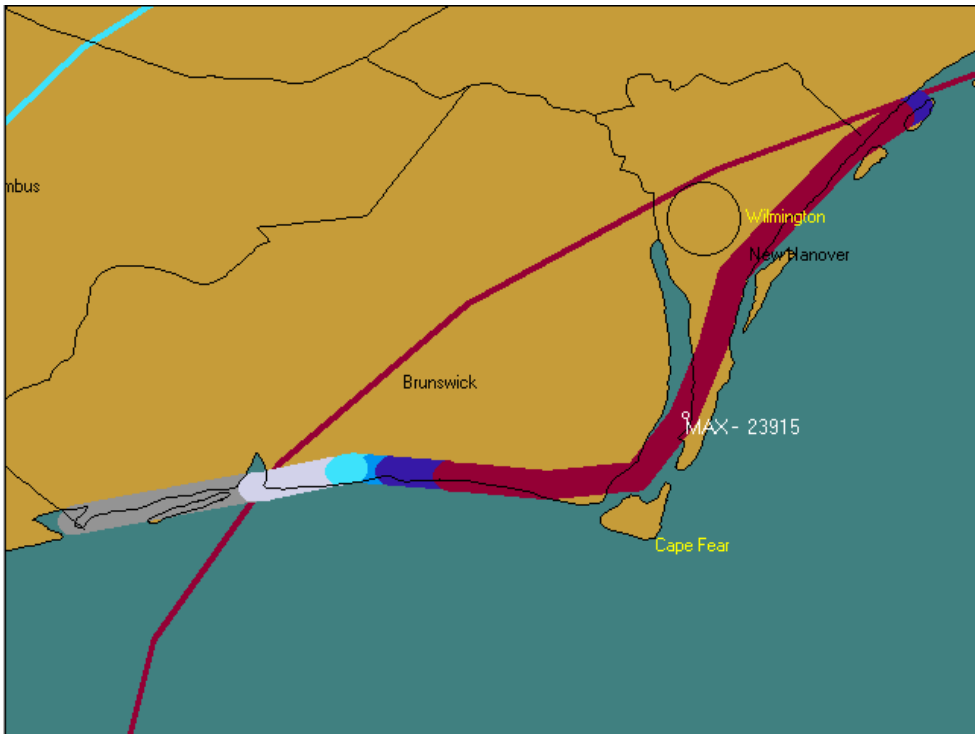


Figure 12

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CUSTOM MAP MAKER

Note: While this original method of creating custom maps is still supported, we recommend that you create your custom maps in a different manner. Simply select the "save as custom map" menu function available on the Map Selection tab and the current image will be saved as a custom map. **See page 104 for more information on this.**

This option, accessible from the main program group or the tracking program, creates custom tracking charts (up to 5) that become integrated with the system. This feature is designed to complement the predefined fixed tracking charts and allows the user to create tracking charts specific to their area. You may select the custom map area in one of 2 ways. Data Entry and Graphical. Please review page 298 for more information on the various tracking charts available to the system

The data fields required to initiate the custom map creation are:

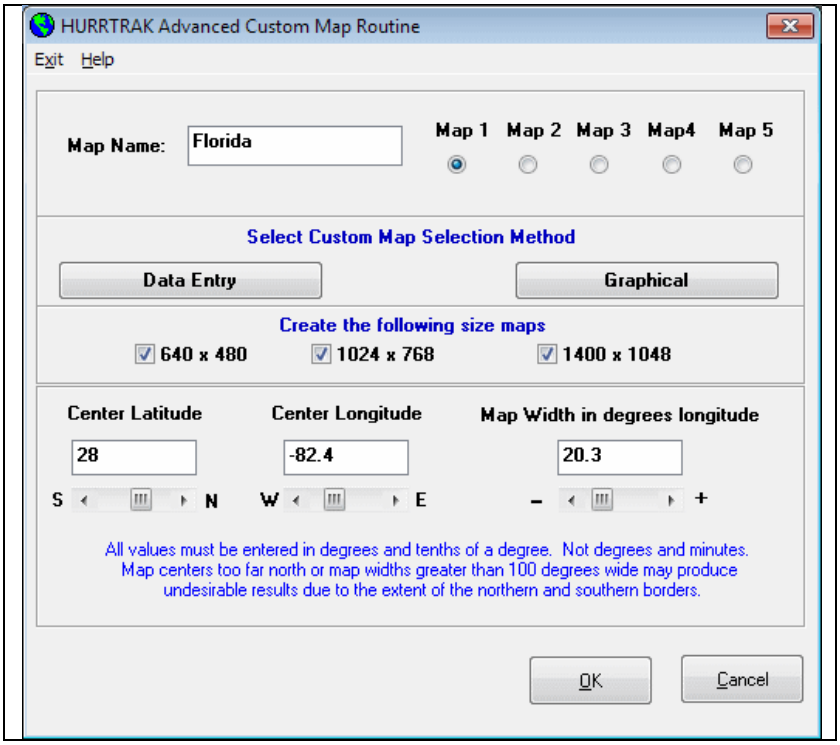
Map Name - The identifier for this map.

Map number - The number (1 to 5) of this map.

Create 640 X 480 Chart - If you primarily use the smaller scale 640x480 pixel charts, then select this option.

Create 1024 X 768 Chart - If you primarily use the large 1024X768 pixel charts, then select this option.

Create 1400 X 1048 Charts – If you primarily use the larger 1400x 1048 pixel charts, then select this option.


HURRTRAK Advanced Custom Map Routine
Exit Help
Map Name: Florida
Map 1 Map 2 Map 3 Map4 Map 5
Select Custom Map Selection Method
Data Entry
Graphical
Create the following size maps
640 x 480
1024 x 768
1400 x 1048
Center Latitude
Center Longitude
Map Width in degrees longitude
28
-82.4
20.3
S N
W E
– +
All values must be entered in degrees and tenths of a degree. Not degrees and minutes.
Map centers too far north or map widths greater than 100 degrees wide may produce undesirable results due to the extent of the northern and southern borders.
OK
Cancel

Which size chart is used is partly determined by user selection in the general options and also by the desktop areas (pixels) being used by the user.

Center Latitude - The latitude of the center of the desired tracking chart. NOTE: North latitudes are positive, while South latitudes are negative. Please enter in decimal degrees, i.e. 25.6, not degrees and minutes.

Center Longitude - The longitude of the center of the desired tracking chart. Western Longitudes, as in the US, are negative and Eastern longitudes are positive. Please enter in decimal degrees, not degrees and minutes.

Map Width - The width of the desired tracking chart in degrees longitude. One degree of longitude is typically 60 statute miles (varies by latitude). This value can range from .1 (6 miles) to 100 (6000 miles) degrees wide. It is advised that you use this feature for smaller scale charts that complement the large number of charts that are included with the system (Custom map example).

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If you select the **Graphical option**, you will be presented with a chart where you simply mark the area desired and select “next” from the menu bar. The center latitude and center longitude, as well as the map width data, will be transferred to the equivalent data fields. Selecting OK will initiate the creation process.

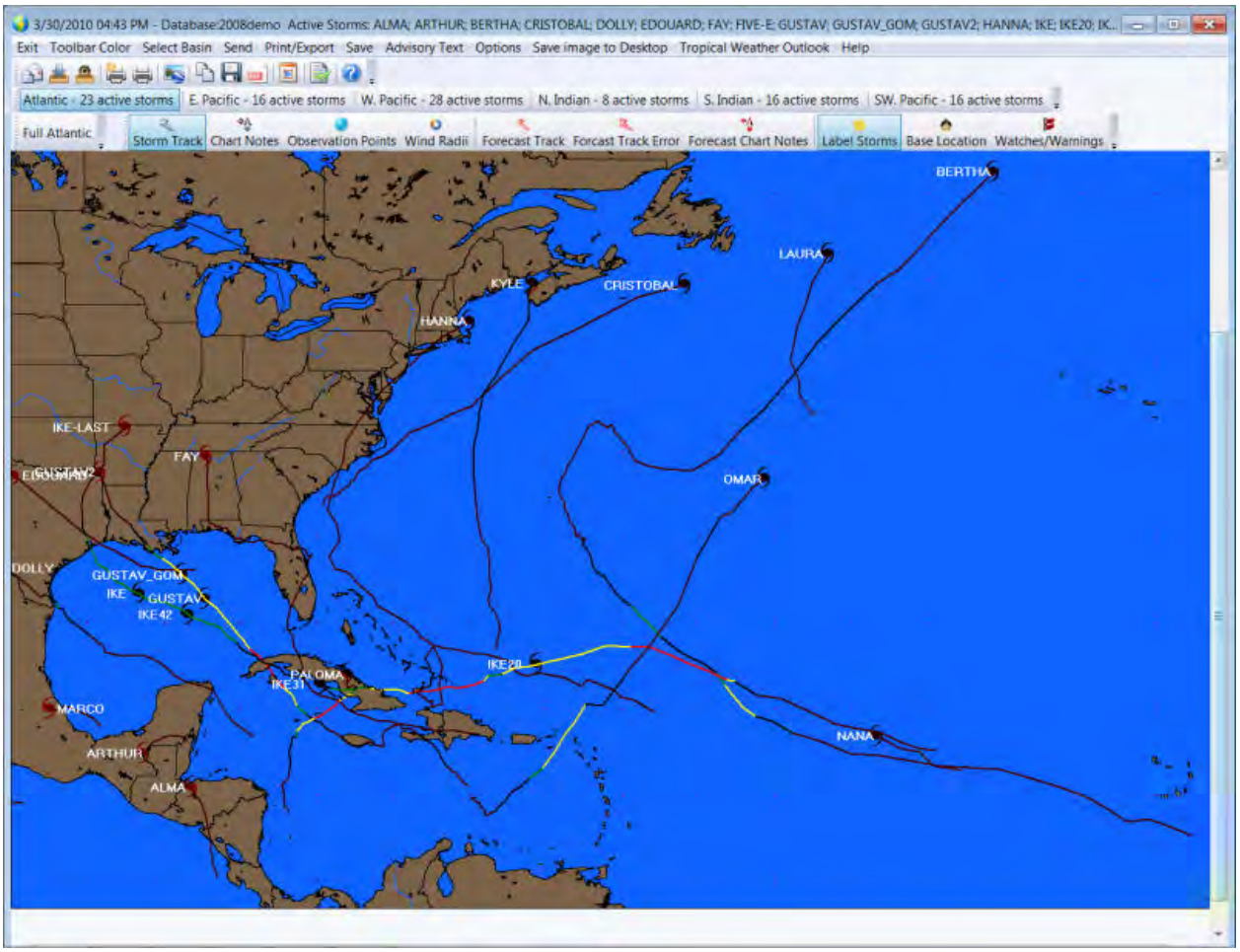
After the map has been created, you will be prompted to "Edit the chart". If you would like to do some color corrections to the tracking chart, select YES, otherwise select NO. This option is useful when certain portions of the chart like lakes and other bodies of water that were "cut off" by the edge of the chart did not turn blue and you would like to correct these before saving the chart. Clicking on the left mouse button will "paint" the selected area blue, while clicking of the right mouse button will "paint" the area the "land color". A shift-left button combination while moving the cursor slowly will draw a line. This is useful if minor changes or corrections need to be made to the coastline, etc.

When done, select the menu option "Finish".

When the map is finished, the county and road databases will be created if they were selected.

After the chart is created, if the tracking portion of the system is active, the new custom map will become part of that system within several seconds. Also, any open tracking chart windows will be closed.

QUICKPLOT


3/30/2010 04:43 PM - Database:2008demo Active Storms: ALMA; ARTHUR; BERTHA; CRISTOBAL; DOLLY; EDOUARD; FAY; FIVE-E; GUSTAV; GUSTAV_GOM; GUSTAV2; HANNA; IKE; IKE20; IK...
Exit Toolbar Color Select Basin Send Print/Export Save Advisory Text Options Save image to Desktop Tropical Weather Outlook Help
Atlantic - 23 active storms E. Pacific - 16 active storms W. Pacific - 28 active storms N. Indian - 8 active storms S. Indian - 16 active storms SW. Pacific - 16 active storms
Full Atlantic Storm Track Chart Notes Observation Points Wind Radii Forecast Track Forcast Track Error Forecast Chart Notes Label Storms Base Location Watches/Warnings
BERTHA
LAURA
KYLE
CRISTOBAL
HANNA
IKE-LAST
FAY
OMAR
DOLLY
GUSTAV_GOM
IKE
GUSTAV
IKE42
IKE20
IKE31
MARCO
NANA
ARTHUR
ALMA

QuickPlot allows the user to find out exactly what is going on... FAST.

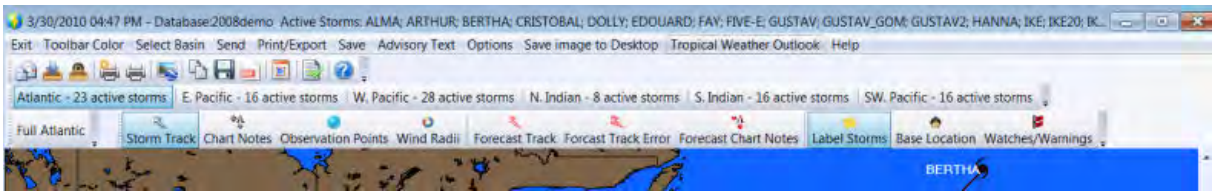
It quickly displays a single tracking chart image showing all of the "current" storms. From here, the user can opt to use the full capabilities of the entire HURRTRAK system with the simple click of the mouse. The key functions of Email sending, printing and saving of images is available allowing the user to easily share the information.

QuickPlot is typically selected from the desktop. However, it can also be initiated from within the main HURRTRAK program.

When using QuickPlot, the HURRTRAK ONLINE Timer program should be active to keep all of the databases current. See notes below.

The functions available from QuickPlot include:

Toolbar


3/30/2010 04:47 PM - Database:2008demo Active Storms: ALMA; ARTHUR; BERTHA; CRISTOBAL; DOLLY; EDOUARD; FAY; FIVE-E; GUSTAV; GUSTAV_GOM; GUSTAV2; HANNA; IKE; IKE20; IK...
Exit Toolbar Color Select Basin Send Print/Export Save Advisory Text Options Save image to Desktop Tropical Weather Outlook Help
Atlantic - 23 active storms
E. Pacific - 16 active storms
W. Pacific - 28 active storms
N. Indian - 8 active storms
S. Indian - 16 active storms
SW. Pacific - 16 active storms
Full Atlantic
Storm Track
Chart Notes
Observation Points
Wind Radii
Forecast Track
Forcast Track Error
Forecast Chart Notes
Label Storms
Base Location
Watches/Warnings
BERTHA

The Toolbar functions are duplicated menu bar functions except for the following:

Add to Email Outbox – This option adds the current image to the Email outbox.

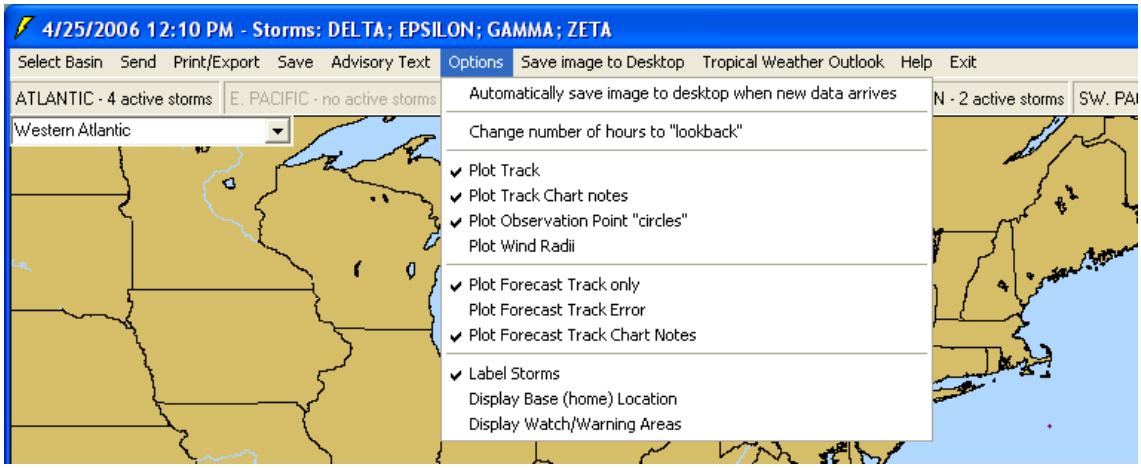
View Email Outbox – This option views the contents of the Email outbox and optionally allows the user to Email them.

More information on the Email Outbox function is available on page 154.

The other toolbar functions include a convenient way to change hurricane basins (global versions) and select plotting options.

Menu

Basin – With Global systems, this option allows the user to change to a different tropical cyclone basin
Toolbar Color – This is a separate setting from the rest of the Hurrtrak System. We suggest you use a color that accents "depressed" command icons.. i.e. orange background when pressed.
Send - Sends the current image via email image as shown on page 156..
Print/Export – Allows the user to print the current image in color, gray scale or B&W or export the image to Google-Earth. See page 306 for more information on Google Earth.
Save (image) – Saves the current image to the clipboard or file (color or B&W).
Advisory Text – Instructs the user to right click on a storm to display its NHC advisory text.
Options – This selection is mostly redundant with the toolbar functions. It allows the user to specify the plotting options.


4/25/2006 12:10 PM - Storms: DELTA; EPSILON; GAMMA; ZETA
Select Basin Send Print/Export Save Advisory Text Options Save image to Desktop Tropical Weather Outlook Help Exit
ATLANTIC - 4 active storms
E. PACIFIC - no active storms
N - 2 active storms
SW. PA
Western Atlantic
Automatically save image to desktop when new data arrives
Change number of hours to "lookback"
Plot Track
Plot Track Chart notes
Plot Observation Point "circles"
Plot Wind Radii
Plot Forecast Track only
Plot Forecast Track Error
Plot Forecast Track Chart Notes
Label Storms
Display Base (home) Location
Display Watch/Warning Areas

All of the options are on/off type and include:

- **Automatically save image to desktop when new data arrives:** When this option is selected, the current image is saved to the users Windows desktop when new information has been plotted.

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- **Change number of hours to look back**: This determines the storms that will be displayed, based on their age. For example, if this value is set at 48 hours, only storm that are less than 48 hours old will be shown. We suggest keeping this value at 24-48 hours.
- **Plot Track:** If selected, the actual track will be shown
- **Plot Track Chart Notes:** If selected, the chart notes are indicated.
- **Plot Observation Point "circles".** If selected, each of the storm's observation points are plotted with circles. If showing an entire season or multiple storms, it is sometimes best to de-select this option.
- **Plot Wind Radii:** If this option is selected, the storm's latest position is indicated with the traditional wind areas. If not, then a storm icon is shown instead.
- **Plot Forecast Track only**: If selected, the storm's forecast track is shown.
- **Plot Forecast Track Error:** If this option is "on" then the forecast track along with average error area is plotted.
- **Label Storms:** This option determines if the storm name is shown next to the storm. The font used is the same as the annotation font set in the main system.
- **Display Base (home) Location:** Determines if the system's base location is plotted on the map. The base location is set in the main system's user preferences.
- **Display Watch/Warning Areas:** If selected, all current watch and warning areas are shown.

Save Image to Desktop – This will immediately save the current image to the user's Windows desktop.

Tropical Weather Outlook – This option will display a text box which displays the latest tropical weather outlook. **From here, the user can then send (email) and/or print the tropical weather outlook text**

Other Functions:

Map Selection – The user can select the best map to use via the map dropdown list in the upper left hand corner of the current image. Only standard ("fixed") tracking charts are available.

Double Click (near a storm) – If the user performs a mouse "double click" near a storm, QuickPlot will close and automatically load the main Hurrtrak system with that storm loaded. This allows the user to easily access the advanced features of the main system.

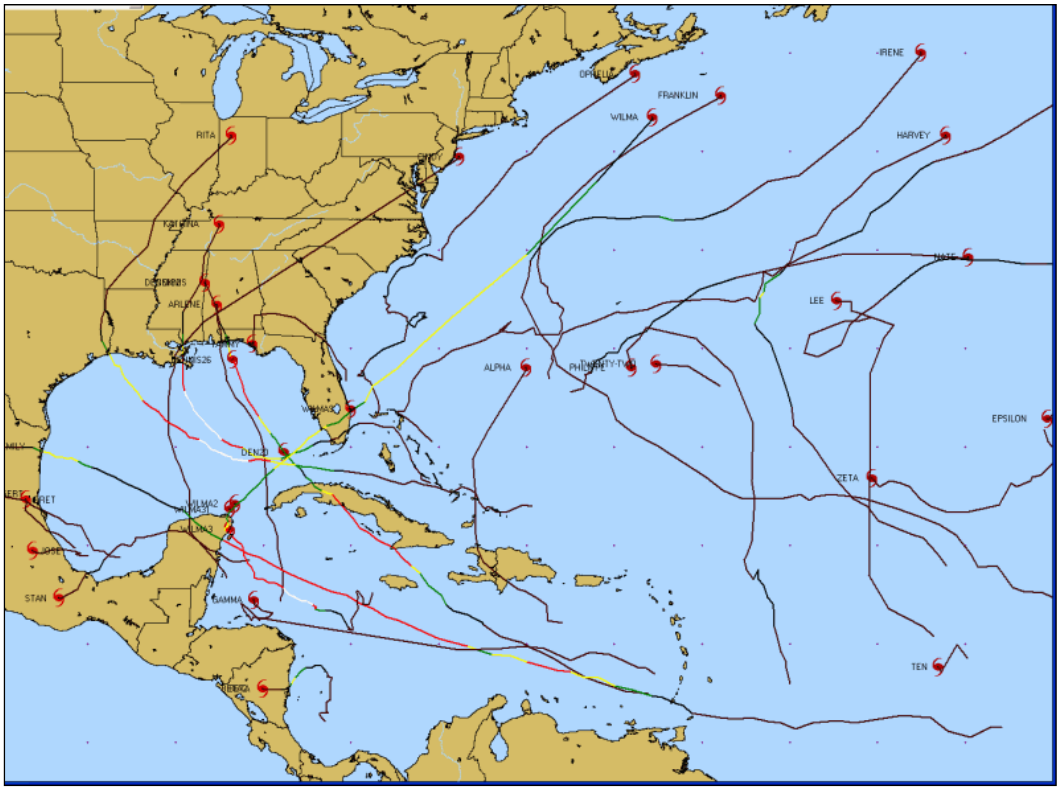
Right Click (away from the storm) – If the user performs a mouse "right click" away from a storm position, the option menu will display. This allows for quick option changes without having to navigate to the menu.

Right Click (near a storm) – If the user performs a mouse "right click" near a storm position, the advisory text for that storm will display in a text box.

QuickPlot Notes:

1. All of the user options and current tracking map set during a session are saved. Subsequent sessions will start with the saved preferences.
2. In order to gain the most benefit from QuickPlot, the user should specify that the HURRTRAK ONLINE timer program be started with Windows startup. This can be done in the Hurrtrak Online user preferences, as described on page 77.
3. QuickPlot is an easy way to show the entire hurricane season. At the end of the season (or during), simply set the "number of hours to look back" to a large number… like 5000. This will force the system to show all of the storms. By selecting certain options, you can create an image like the one below.

All storms in the 2005 hurricane season



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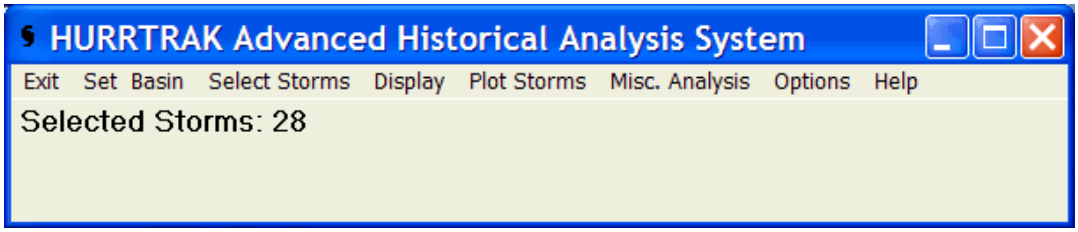
Hurricane/Tropical Cyclone Historical Analysis System


HURRTRAK Advanced Historical Analysis System
Exit Set Basin Select Storms Display Plot Storms Misc. Analysis Options Help
Selected Storms: 28

The Historical Analysis System allows you to analyze past storm information from 1851 to the present. The system operates by the user first selecting a storm or group of storms and then taking actions on that group (i.e. Plot, display data, etc.) The amount of data available depends on which tropical basin is being analyzed.

The menu selections include:

Exit - Exits the program

Set Basin

Select

Display

Plot Storms

Misc. Analysis

Options: Plot with thin lines. This option forces the system to plot historical tracks with fine (thin) lines rather than the normal thicker lines. This is useful when plotting a large number of tracks.

Help - Displays help text

Set Basin

This pull down, **only available in the Global Tracking Systems**, allows the user to select the tropical basin they wish to analyze.

1- Atlantic
2- Eastern Pacific
3- Western Pacific
4- Northern Indian
5- Southern Indian
6- Southwest Pacific

Selection Methods

HURRHIST has several methods for selection a storm or group of storms. They are:

- Select Storms by Location (set distance)
- Select Storms by Location (variable distance)
- Select Storms by Name
- Select Storms by Year
- Select Storms by Strength

Let's examine each selection method.

Select Storm by Location (set distance)

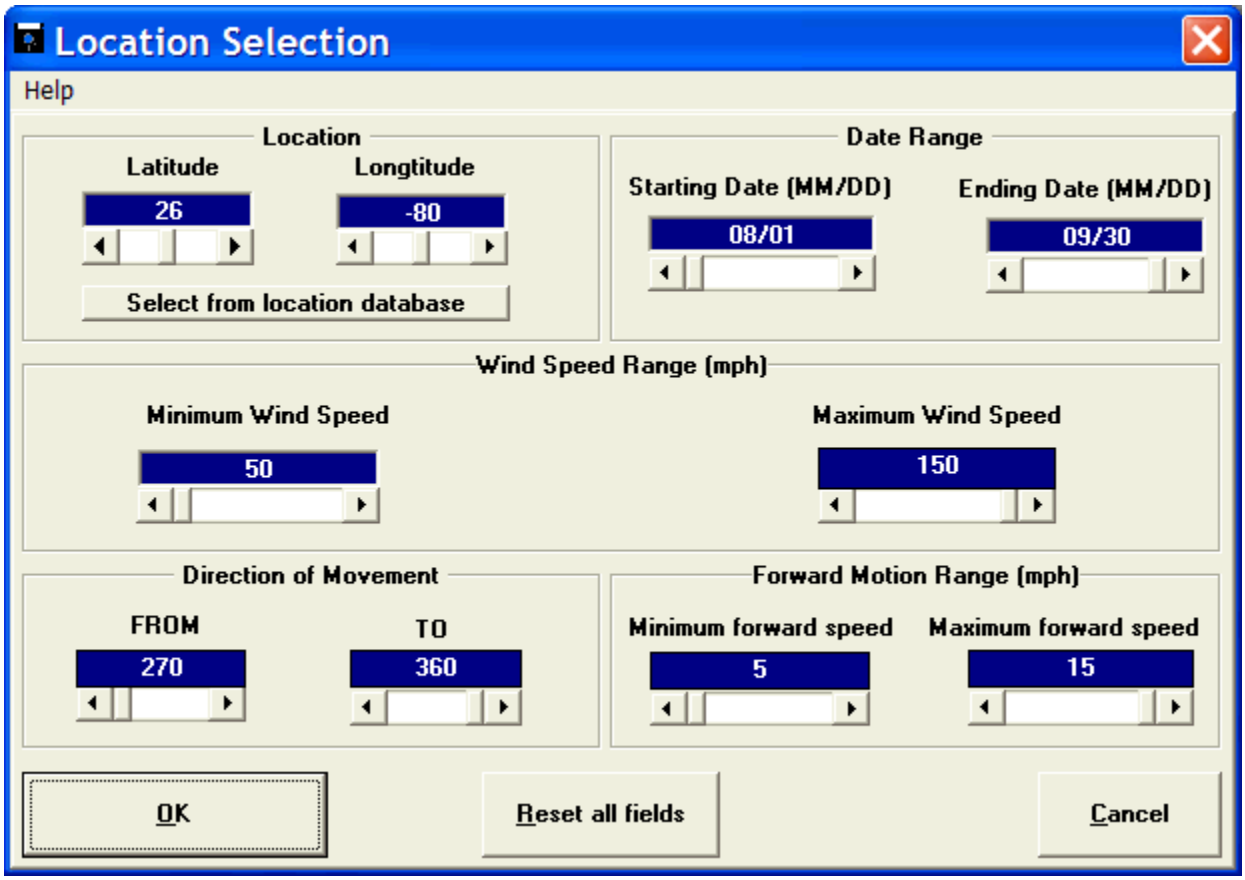


Figure 13

By far the most complex selection method, selecting a group of storms by location allows the user to do a very detailed analysis of how an area historically has been affected by storms and also do some real-time comparison to a current storm situation. For example, you can see how many storms have passed within 60 miles of the nearest whole latitude / longitude point that had winds greater than 74 mph. Or, if there is a current storm moving through the Lesser Antilles, you can do an analysis showing all of the past storms that are "similar" in characteristics as this one.

The following fields are required:

Latitude - The latitude of the location you wish to analyze. Be sure to enter this in degrees and tenths of a degree, not degrees and minutes. Northern latitudes are positive. You may use the “select from location database” function to have the system automatically find a location’s latitude & longitude.

Longitude - The longitude of the location you wish to analyze. Again, this should be entered in degrees and tenths of a degree. Western Longitudes, like the Americas, are negative, while Eastern longitudes are positive. You may use the “select from location database” function to have the system automatically find a location’s latitude & longitude.

The following optional data fields are initially set to their widest ranges. If you wish to "narrow" the number of storms selected, you may modify their values. They include:

Starting Date - The beginning date of the date range you wish to select.

Ending Date - The ending date of the date range you wish to select.

Minimum Wind Speed - The low end of the wind speed range. The unit of measure (UOM) used is determined by the user preferences as set in the tracking portion of the system .
Maximum Wind Speed - The high end of the wind speed range. The UOM used is determined by the user preferences as set in the tracking portion of the system.

Direction of movement - FROM - This represents the "from" azimuth value

Direction of movement - TO - This represents the "to" azimuth value.

Direction of Movement - The prior two fields define the direction of storm movement. The values are based off of a compass azimuth system where North is 0 or 360 degrees, East is 090, South is 180 and West is 270 degrees.

The direction of movement is defined from the FROM value clockwise to the TO value.

This is best explained with examples:

To select only storms that were moving to the NW, you would enter FROM - 270, TO - 360. See Figure 14.

To select only storms that were moving to the North, you would enter FROM - 315. TO - 045.

To select only storms that were moving to the West, you would enter FROM - 225, TO - 315.

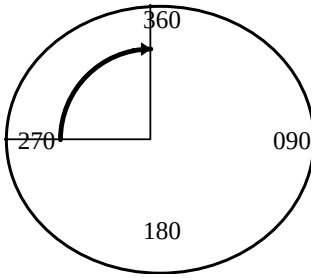


Figure 14

All of these examples allow for a 90-degree wide range. In other words, for the East example, we will select all storms that were moving from the NE (045) to ones that were moving from the SE (135). If you want to narrow this range even further, you may do so. I.E. If you want storms that were coming from nearly due East, the FROM could be 080 and the TO could be 100 degrees.

This area is a little complicated, so it may be best to try different values and see the results.

Forward motion minimum forward speed - The low end of the range of storm forward motion speed. The unit of measure (KTS or MPH) is determined by the user preferences in the tracking part of the system.

Forward motion maximum forward speed - The high end of the range of storm forward motion speed. The unit of measure (KTS or MPH) is determined by the user preferences in the tracking part of the system.

An example of the following query is shown on page 218.
Select all the storms that passed within 60 miles of 26 north latitude and 80 degrees west longitude, that occurred between August 1 and September 30, that had peak winds between 50 and 150 knots and were moving from the southeast at 5 - 15 knots.

Select Storm by Location (variable distance) - RM/Pro only

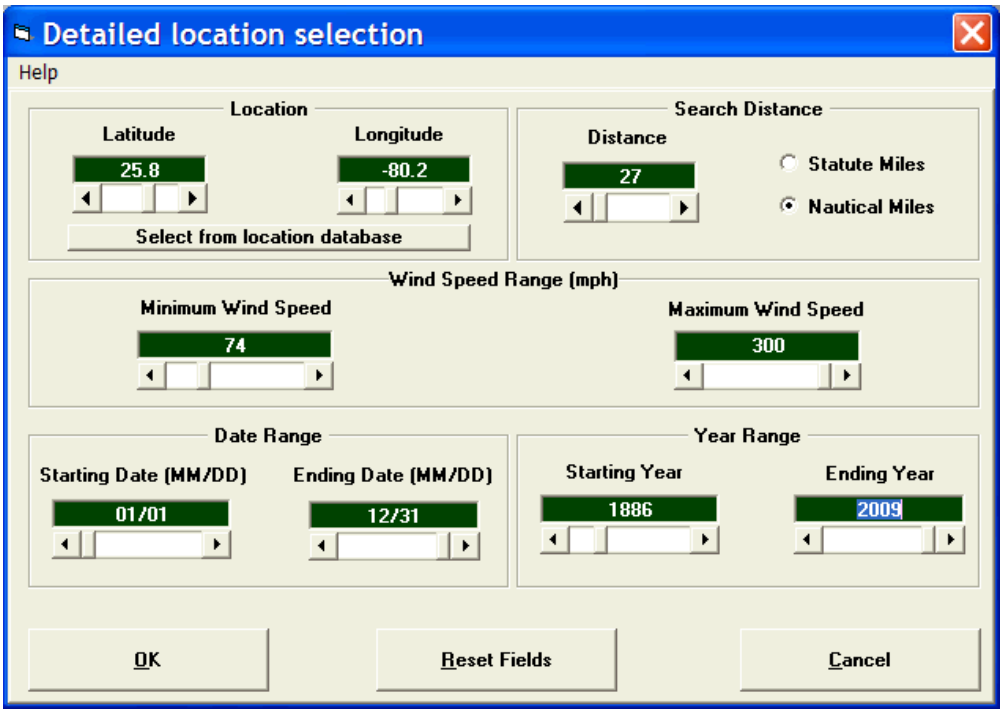


Figure 15

This selection method allows the user to select storms by a variable distance from a location. For example, you can see how many storms have passed within 27 miles of Miami, FL had winds greater than 74 MPH.

The following fields are required:

Latitude - The latitude of the location you wish to analyze. Be sure to enter this in degrees and tenths of a degree, not degrees and minutes. Northern latitudes are positive. You may use the "select from location database" function to have the system automatically find a location's latitude & longitude.

Longitude - The longitude of the location you wish to analyze. Again, this should be entered in degrees and tenths of a degree. Western Longitudes, like the Americas, are negative, while Eastern longitudes are positive. You may use the "select from location database" function to have the system automatically find a location's latitude & longitude.

Search Distance - The distance you would like to use in the query.

The following optional data fields are initially set to their widest ranges. If you wish to "narrow" the number of storms selected, you may modify their values. They include:

Minimum Wind Speed - The low end of the wind speed range. The unit of measure (UOM) used is determined by the user options as set in the tracking portion of the system .

Maximum Wind Speed - The high end of the wind speed range. The UOM used is determined by the user options as set in the tracking portion of the system.

Starting Date - The beginning date of the date range you wish to select.

Ending Date - The ending date of the date range you wish to select.

Starting Year - The beginning year of the date range you wish to select.

Ending Year - The ending year of the date range you wish to select.

Select by Storm Name

This option allows you to select storms by name.

Required field:

Storm Name - The name of the storm you would like to select.

Optional field:

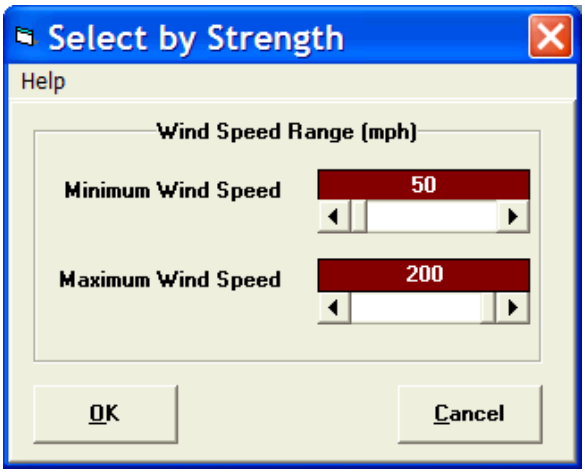
Storm Year - The year of the storm you would like to select. If this field is empty, then all of the storms with the desired name will be selected.

Select by Year

This option allows you to select all the storms for a particular year.

Storm Year - Year desired

Select by Strength



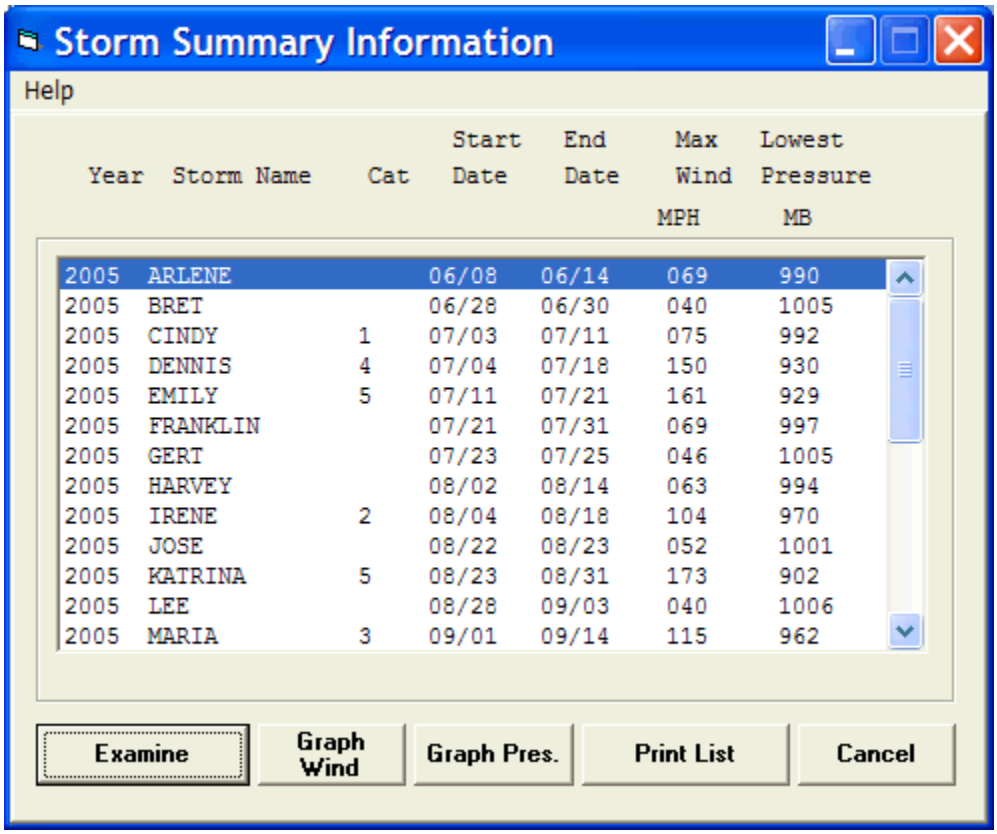
This option allows you to select storms by their maximum wind strength. The unit of wind speed (KTS or MPH) is determined by the user preferences in the tracking part of the system.

Minimum Wind Speed - The low end of the wind speed range.

Maximum Wind Speed - The high end of the wind speed range.

Display Storms

After a group of storms has been selected, the display option will show the storm summary information. This is done automatically after the initial selection.



This screen displays general information about all of the storms selected. Year, Storm Name, Category, Start Date, End Date, Max Wind Speed, Lowest Pressure. The Unit of measure used for the wind speed and pressure is set in the User Preferences in the main tracking portion of the system.

The options available from here include:

Examine

Graph Wind

Graph Pressure

Print List - Prints the list of storms on your printer.

Cancel - Closes this window.

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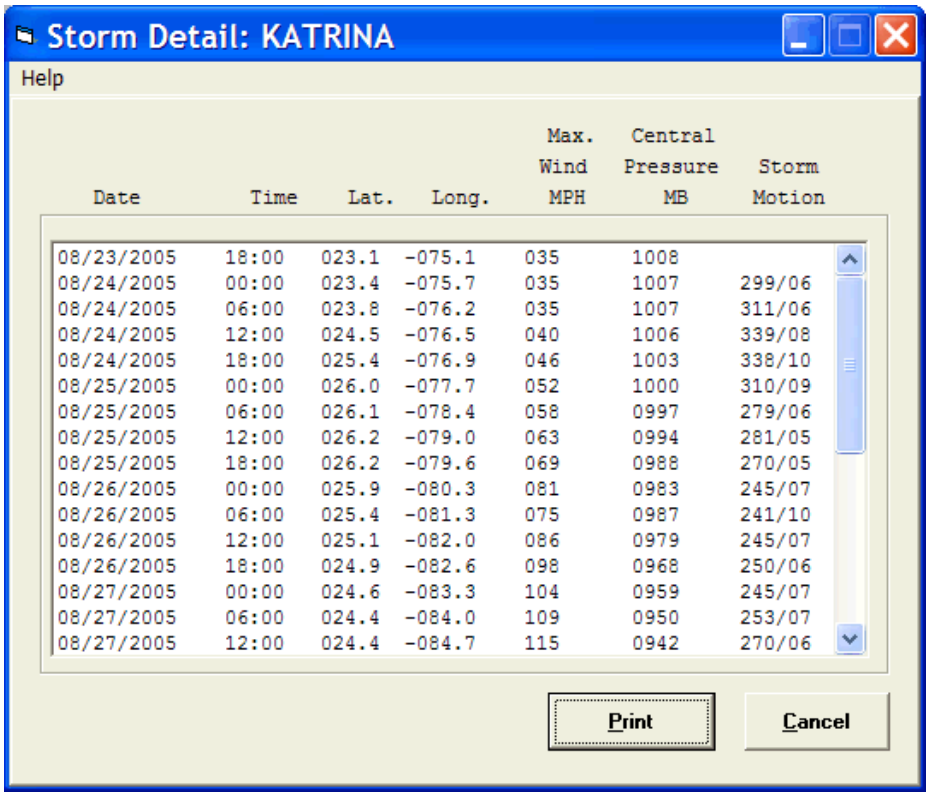
Examine



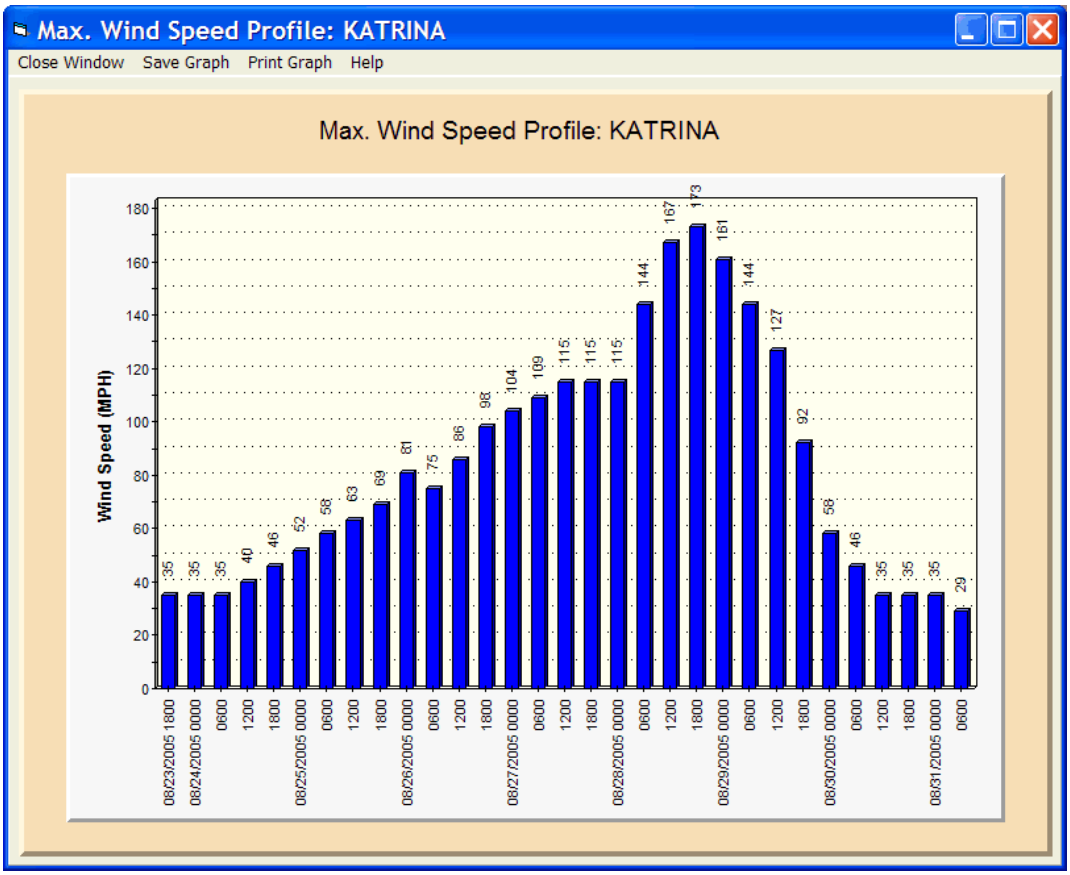
This option displays each observation point for the selected storm. Typically, there are 4 observations per day which include the date, time, position (latitude, Longitude), maximum wind speed, central pressure and forward motion of the storm.

Options from this window are:

Print - Print all the storm observations.

Cancel - Close this window.

Graph Wind



This window displays the selected storm's max. wind speed profile. Max and Min wind speed is indicated by the horizontal dashed lines. The unit of measure, MPH or KNOTS, is determined by the user options set in the tracking portion of the system.

Options available from this window:

Close Window - Closes the window.

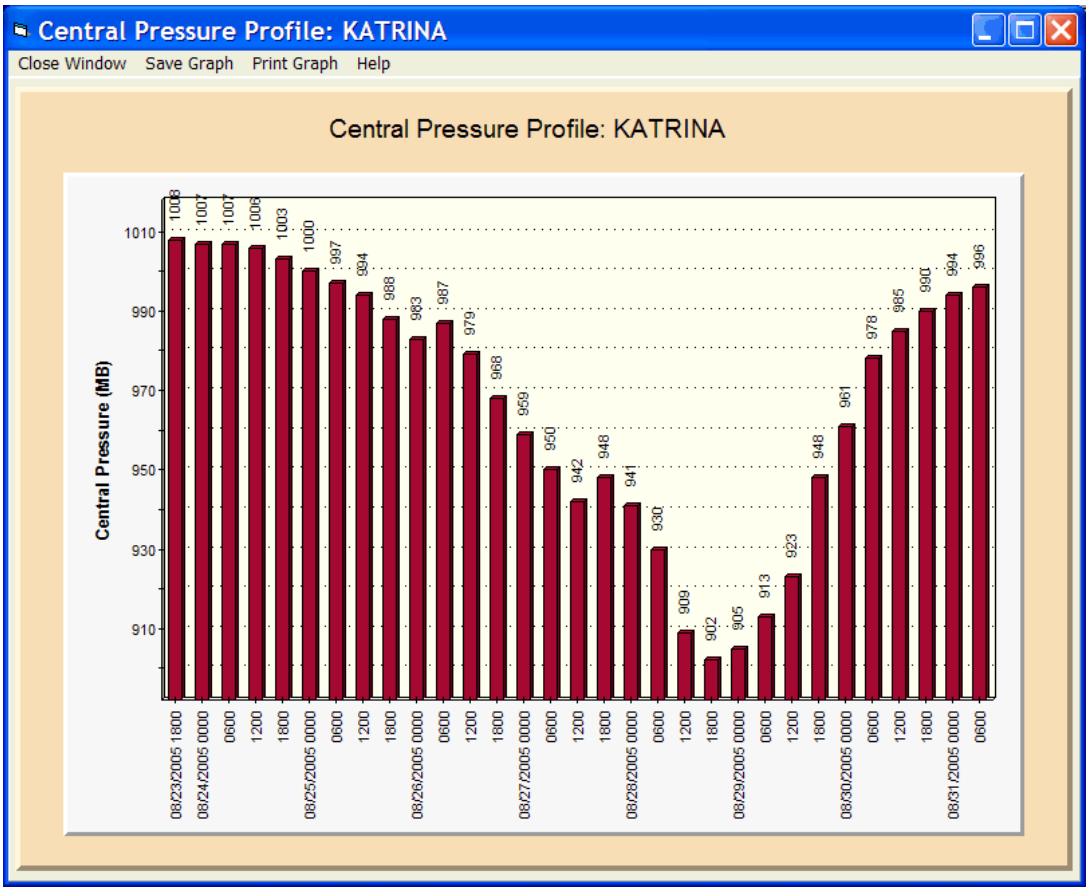
Save Graph – Save the graph to a bmp file.

Print Graph - Prints the graph.

Help - Displays this help text.

There is a set of graphing options available from the top portion of the chart which changes the characteristics of the graph. Experiment with these to determine the graph that best suits your needs.

Pressure Graph



This window displays the selected storm's central pressure graph. Each bar represents an observation point. The unit of measure, millibars or inches of mercury, is based on the user options set in the tracking portion of the system.

Options available from this window:

Close Window - Closes the window.

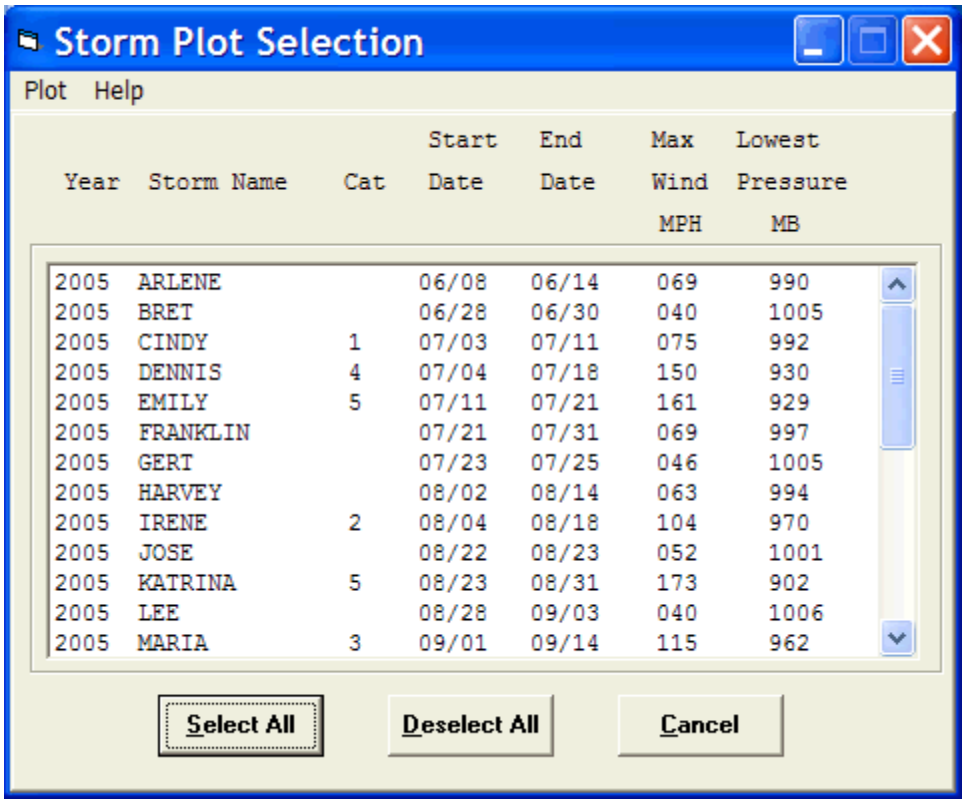
Save Graph – Save the graph to a bmp file.

Print Graph - Prints the graph in black and white. Note: The size of the printed output is dependent on the size of the displayed window. I.E. A larger window results in a larger print area.

Help - Displays this help text.

There is a set of graphing options available from the top portion of the chart which changes the characteristics of the graph. Experiment with these to determine the graph that best suits your needs.

PLOT (Storm Plot Selection)



This screen displays general information about all of the storms selected. Year, Storm Name, Category, Start Date, End Date, Max Wind Speed, Lowest Pressure. The unit of measure used for the wind speed and pressure is set in the User Preferences in the main tracking portion of the system. **Multiple storms can be selected for plotting from this window.**

Commands available from this window include:

Select ALL - Selects all of the storms in the list.

Deselect All - Deselects all of the storms in the list.

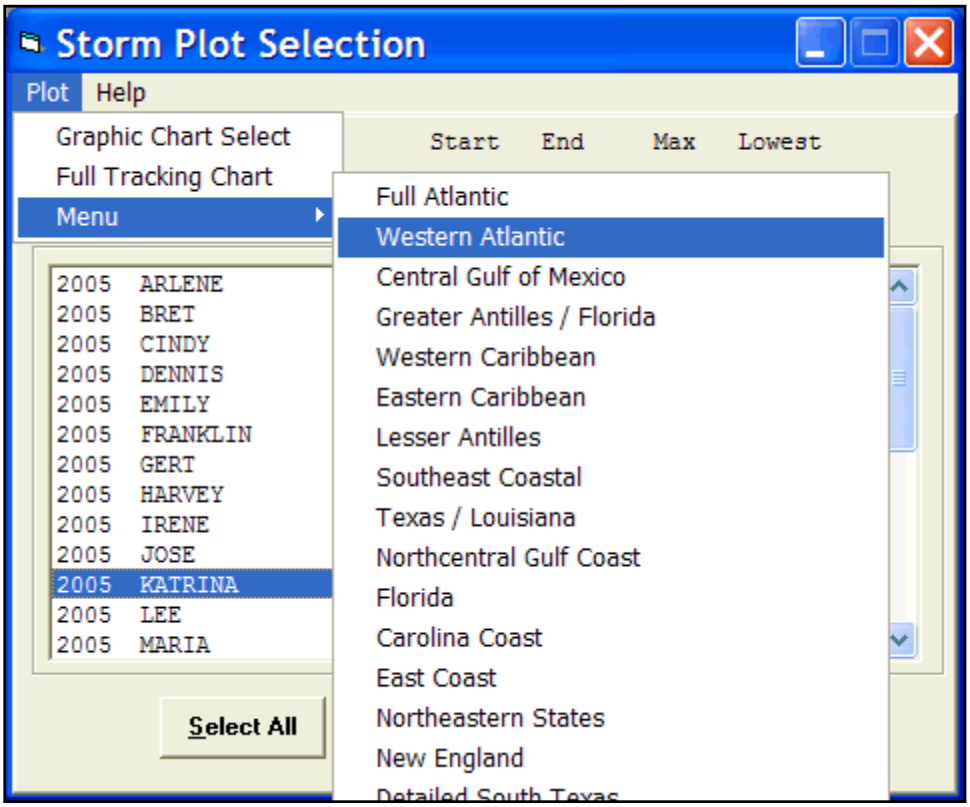
Mouse Select - Storms may be selected or deselected individually by clicking with the left mouse button on the list entry.

Once one or more storms have been selected, the user may plot the storm tracks by picking one of the menu PLOT options.

Graphic Select - This option places a large scale tracking chart in a window on the screen. The user can select the tracking chart they want to view by moving the cursor over the black "rectangles" that represent all of the available tracking charts. When the desired rectangle is highlighted, clicking the left mouse causes this chart to be selected. The red circle indicates the latest position of the current storm.

Full Chart - This option displays the largest available tracking chart for this tropical basin

Menu - This allows the user to select from the entire list of available tracking charts.



When a tracking chart has been selected, it is displayed with all of the selected hurricane tracking charts displayed. Let's take a look at the options available to the user when displaying these charts.

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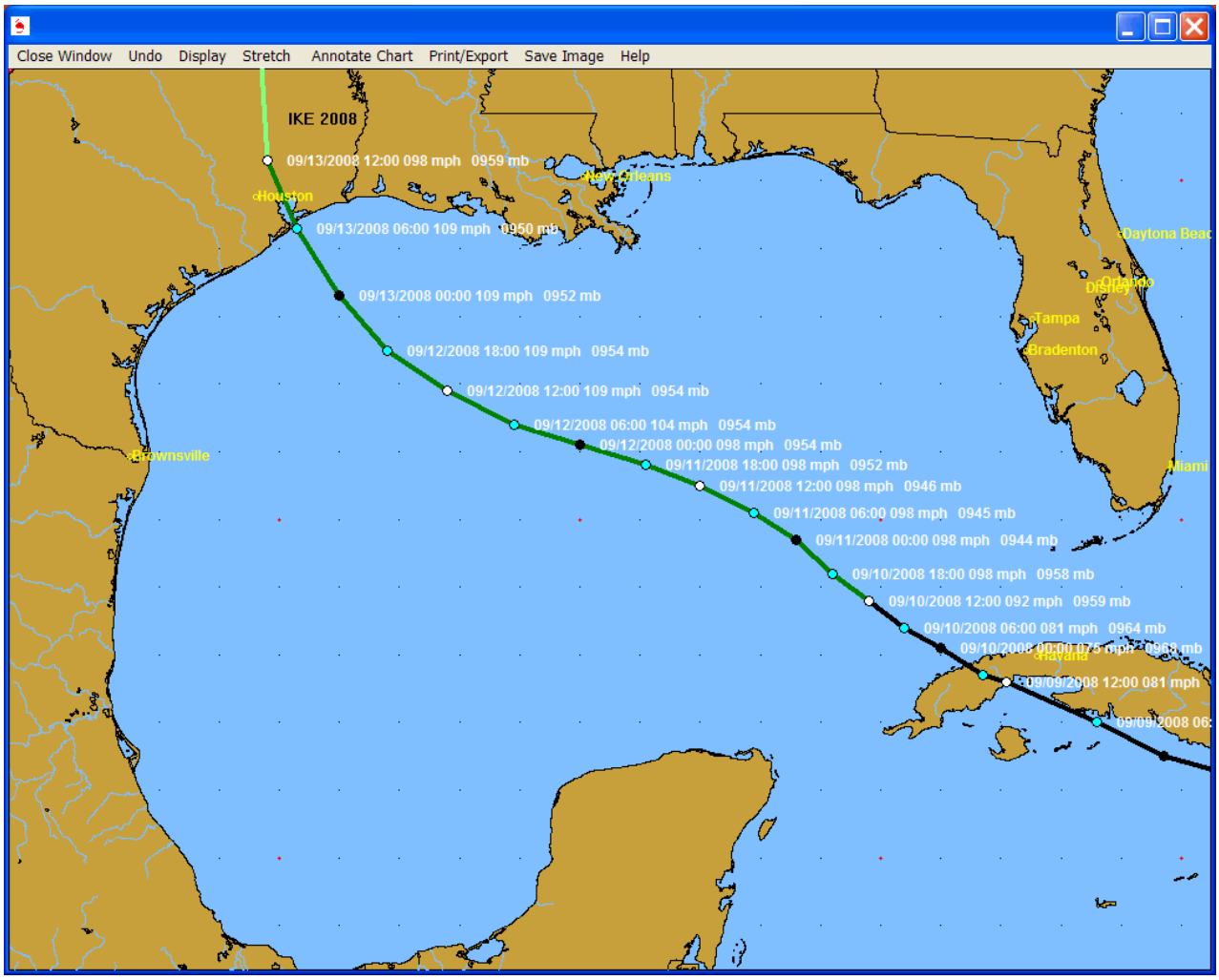

While viewing storm plots on a tracking chart, there are several menu options available. They include:

Close Window - Closes this window.

DISPLAY:

Display Locations - Displays all of the locations for the selected location group.

Display Counties - Displays the county lines

Display Roadways - Displays the significant roadways. This may take several seconds.

Display Latitude/ Longitude values - Displays latitude and longitude labels along the sides and top of the tracking chart.

Display Chart Notes - Displays storm observation information next to the observation points. If the points are close together, some chart notes will not plot to prevent overwriting.

Display Track Color Legend – Displays the color-coded storm track legend.

Forecast Error Legend – Displays the color coded forecast error legend.

Wind Field Legend – Displays the color coded legend for wind radii.

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Stretch - Displays the tracking chart in "full screen" mode. No operations can be done while in this mode as it is only for viewing. Clicking the mouse button will return you from stretch mode.

Annotate Chart - Allows the user to add his/her notes to the tracking chart being displayed. After selecting this option, you select the point you wish to add comments by pressing the right mouse button on the screen and then entering the text desired. When done, click on "end annotate" on the menu bar.

Print/Export:

Print Setup – Allows the user to define which printer settings they would like to use**.**

Color - Prints the current image in color. If you have a B/W printer, your print driver will convert the colors to gray scale.

Grayscale - Prints the current image in gray scale regardless of your printer type.

Export image to Google Earth – exports Image to Google Earth.

Export Google Earth KML – Exports all of the displayed tracks to Google Earth using KML.

Save Image:

Copy to Clipboard - Copies the current image to the windows clipboard for pasting into most graphics applications.

Save to File - Saves the current image to a BMP, PCX, TIF or JPG file. Most all windows graphics and word processing applications accept BMP files.

Save fax image to File - Saves the current image to a BMP, PCX, TIF, or JPG file after automatically modifying the image to "line art". All colors are changed to black, while the Ocean and Land areas are set to white.

Help - Displays this help screen.

Miscellaneous Analysis

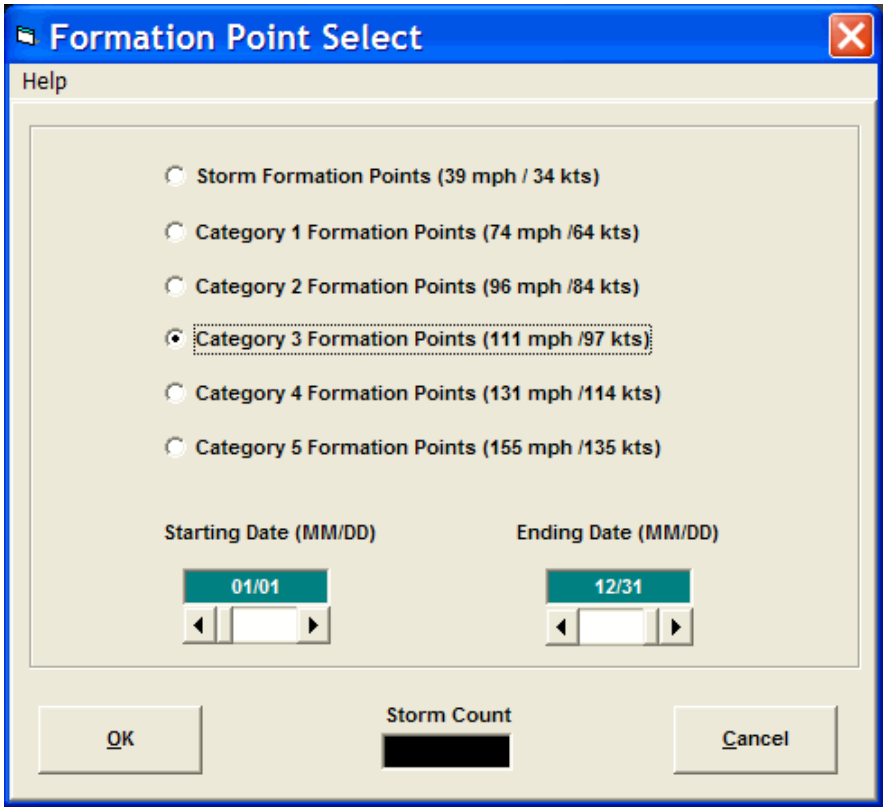
This Menu option allows the user to do the following additional analysis:

Formation Point

Location Analysis

Formation Point Selection

This option allows the user to select a group of storms based on intensity and date range and then display their formation points on the large tracking chart. If the user selects "Storm Formation Points", all of the storms' formation points will be displayed. If one of the "Class" (Storm classification 1 - 5) options are selected, then what will be displayed is the point when those storms first attained that class. Entering information into the following date fields can optionally narrow the selection:


Formation Point Select
Help
Storm Formation Points (39 mph / 34 kts)
Category 1 Formation Points (74 mph /64 kts)
Category 2 Formation Points (96 mph /84 kts)
Category 3 Formation Points (111 mph /97 kts)
Category 4 Formation Points (131 mph /114 kts)
Category 5 Formation Points (155 mph /135 kts)
Starting Date (MM/DD)
Ending Date (MM/DD)
01/01
12/31
OK
Storm Count
Cancel

Start Date - The starting date range of the selection criteria, Month/Day.

Ending Date - The ending date range of the date selection criteria, Month/Day.

For example, to display all the locations where class 4 hurricanes attained that level between August 1st and September 30th, you would select "Class 4 Formation Points" and enter 08/01 in the starting date field and 09/30 in the ending date field. The results of this query are shown on the next page.

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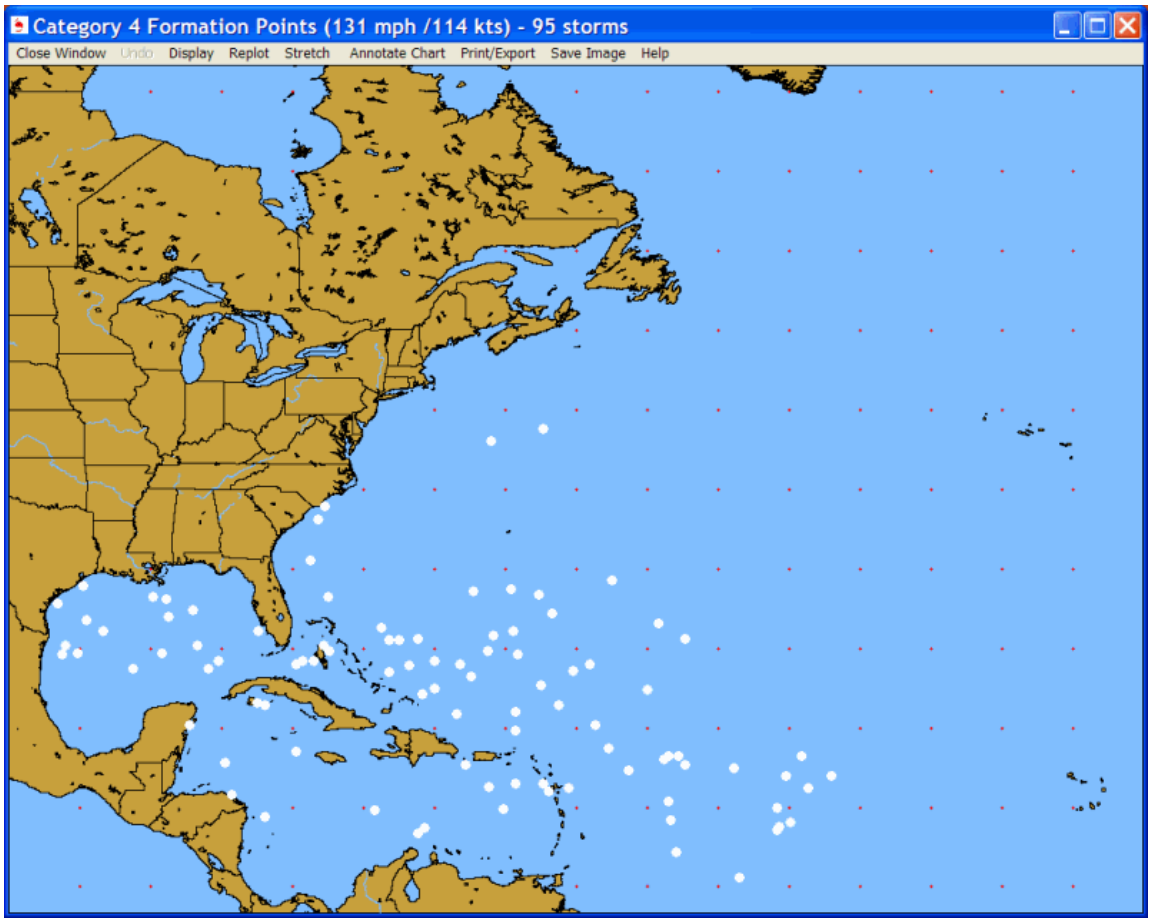
Formation points chart



This window displays the results of the formation point select query. It shows a white circle for every storm that attained the level specified in the selection.

Options available include:

Close Window - Closes this window.

Undo – Undoes last action (1 level only)

DISPLAY:

Display Locations - Displays the locations in the selected location group.

Display Latitude/ Longitude values - Displays latitude and longitude labels along the sides and top of the tracking chart.

Replot – Allows the user to re-plot the formation points in smaller or larger sizes.

Stretch - Displays the tracking chart in "full screen" mode. No operations can be done while in this mode, as it is only for viewing. Clicking the mouse button will return you from stretch mode.

Annotate Chart - Allows the user to add his/her notes to the tracking chart being displayed. After selecting this option, you select the point you wish to add comments by pressing the right mouse button on the screen and then entering the text desired. When done, click on "end annotate" on the menu bar.

Print/Export:

Print Setup – Allows the user to define which printer settings they would like to use**.**

Color - Prints the current image in color. If you have a B/W printer, your print driver will convert the colors to gray scale.

Grayscale - Prints the current image in gray scale regardless of your printer type.

Export image to Google Earth – exports Image to Google Earth.

Export Google Earth KML – Exports all of the displayed formation points to Google Earth using KML.

Save Image:

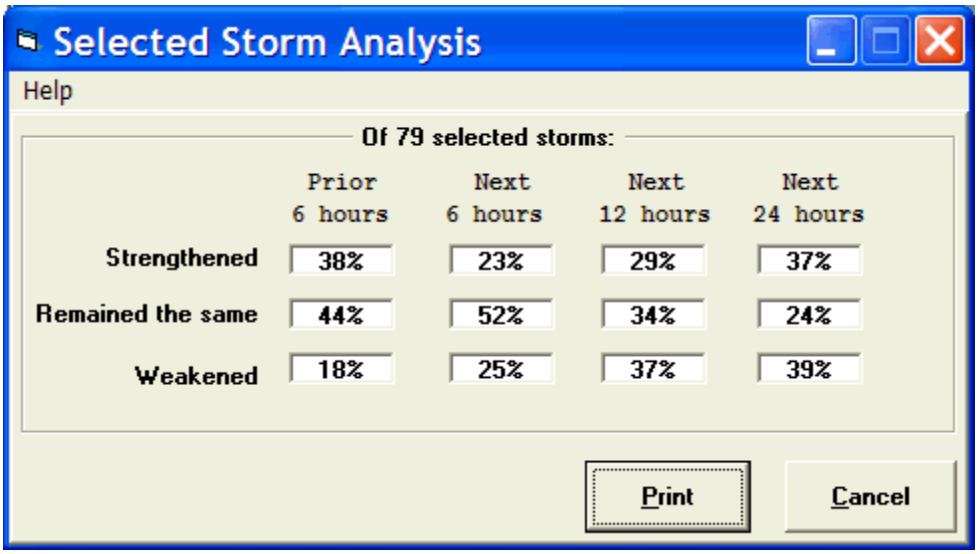
Copy to Clipboard - Copies the current image to the windows clipboard for pasting into most graphics applications.

Save to File - Saves the current image to a BMP, PCX, TIF or JPG file. Most all windows graphics and word processing applications accept BMP files.

Save fax image to File - Saves the current image to a BMP, PCX, TIF, or JPG file after automatically modifying the image to "line art". All colors are changed to black, while the Ocean and Land areas are set to white.

Help - Displays this help screen.

Location Historical Analysis



This option is only active when a group of storms has been selected via the "select storms by location" method. It displays the storm group trend information indicating what percent strengthened, weakened and remained the same for the prior 6 hours, next 6, 12 and 24 hours. This is useful when using the system to compare the historical data to a current storm situation.

Options available from here include:

PRINT - Print the current information.

Cancel - Close this window.

SLOSHView - SLOSH & Inundation Analyzer

SLOSHVIEW Tutorial

SLOSHView is a module in the HURRTRAK system which gives the user great flexibility in viewing the SLOSH MOM and MEOW storm surge data.

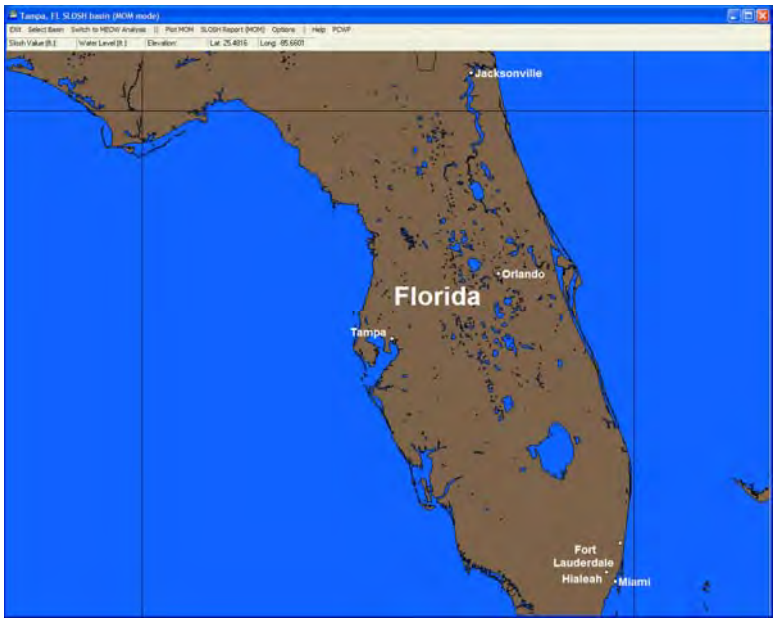
In addition to displaying the "raw" SLOSH values, the system will also calculate and graphically display the inundation analysis... which is the potential water level above ground, as well as generate a SLOSH report indicating potential flood levels for specific locations. All of this is done on user-selectable maps that can be drawn down to the street level. The mapping database also includes landmarks, such as cities, railroads, airports, pipelines, power lines, and more. For information on Inundation Analysis, see page 295.

There are three key databases installed in order to do the SLOSHView Inundation Analysis:

1. **NWS SLOSH Basin Analysis** - This data is provided courtesy of the National Weather Service. Will Shaffer of the NWS has been very helpful. For more information on SLOSH and how it is derived, see page 293.
2. **USGS Digital Elevation Model database** - This data was procured from the USGS and contains elevation information for all coastal areas on a 1 arc second grid. This equates to a data point about every 100 ' or so.
3. **US mapping Information** - This database was procured from a 3rd party vendor. It contains detailed road atlas mapping information (street level).

By combining the detailed mapping with the SLOSH and elevation data, the SLOSHView program allows the user to depict potential storm surge flooding areas on very detailed maps. See an example below.

When starting the SLOSH View Module, the SLOSH basin analyzed, when the program last closed, is presented (the initial default location is Miami, FL). At this point, the user may "zoom" down to the desired level of detail to analyze. In the following example, we used Tampa, FL.



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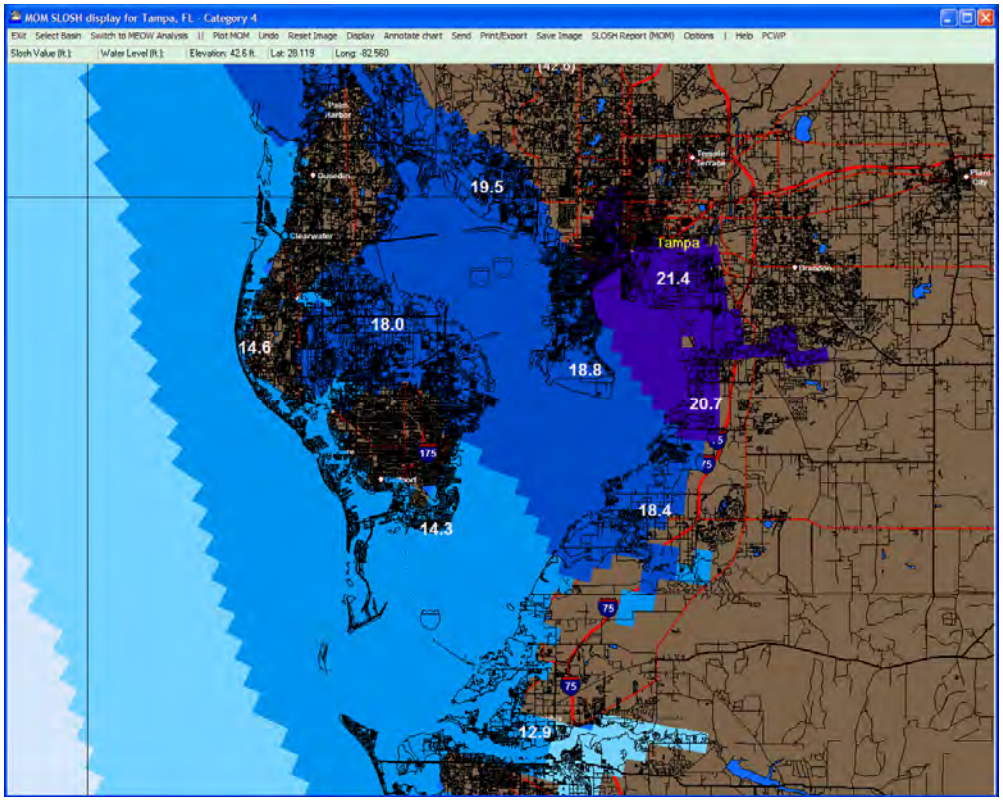
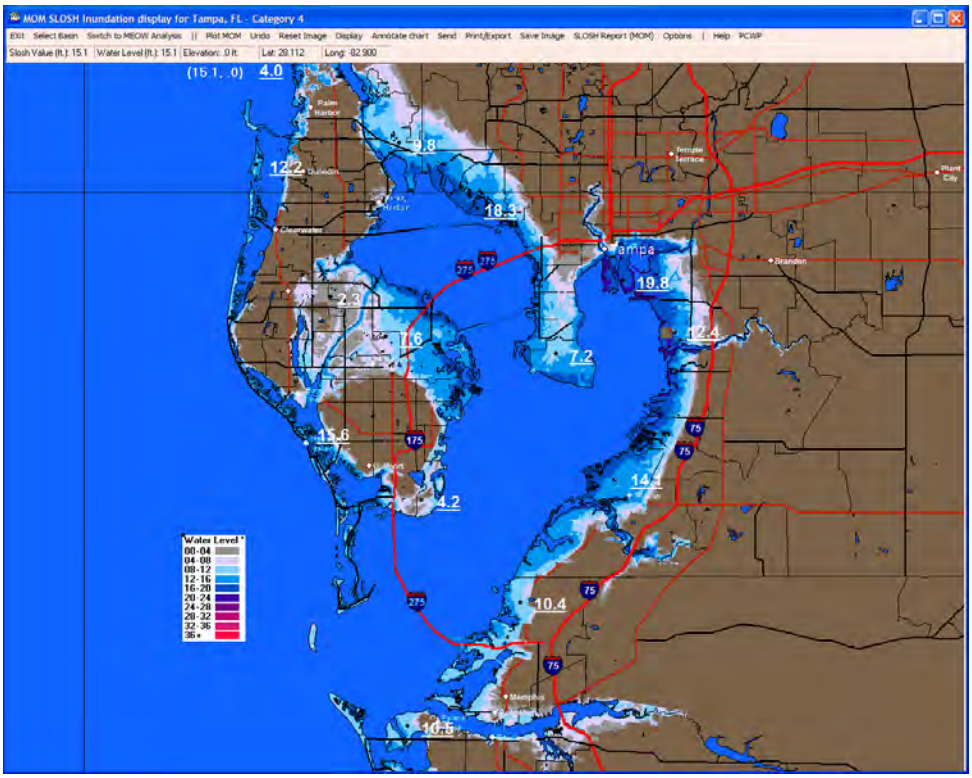
When the user selects the area of Tampa Bay, they do a MOM SLOSH analysis which shows the raw SLOSH values.



Or, they may do a MOM inundation analysis for the same area which takes into account the land elevation.



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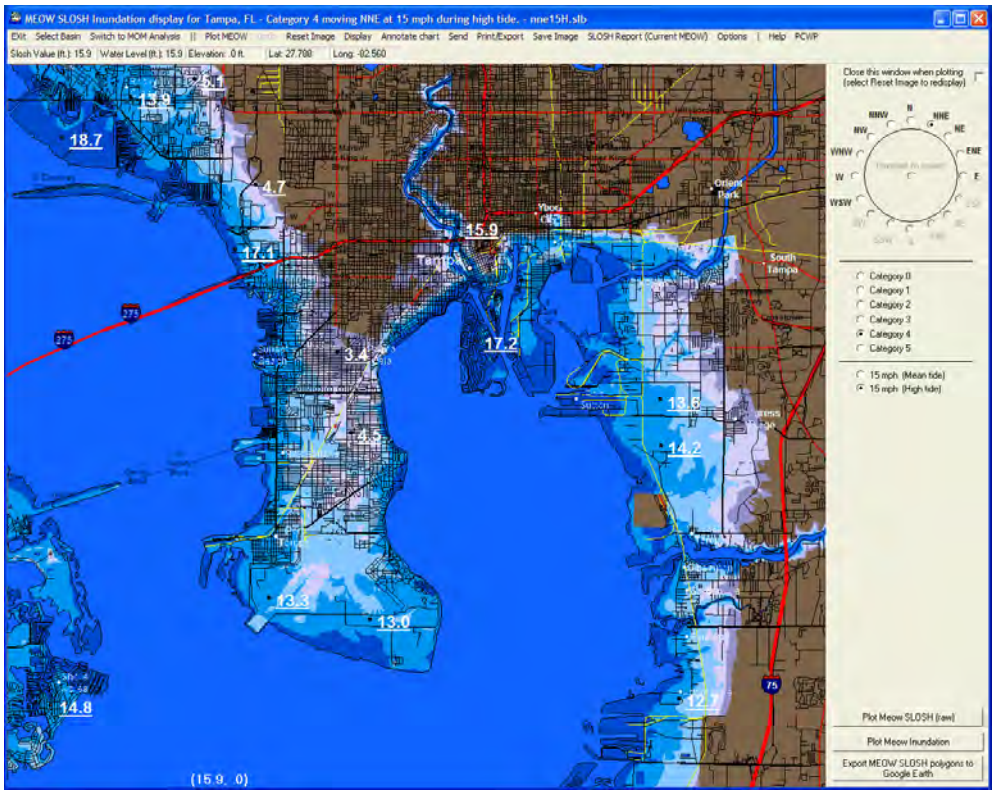
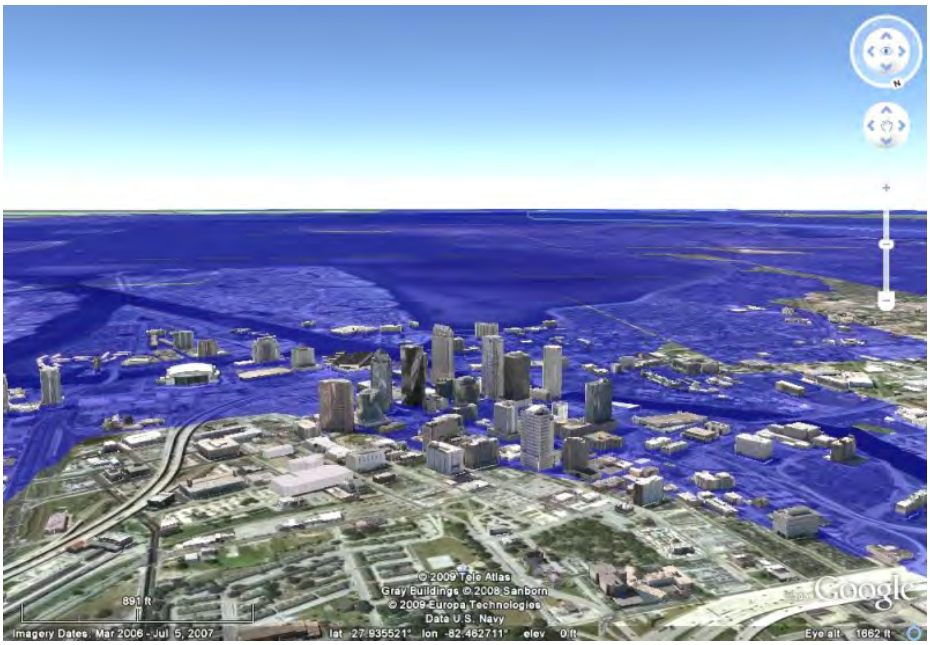
The user zooms down some more to the City of Tampa and now does a MEOW inundation analysis for a Cat 4 storm moving NNE at 15 MPH during high tide.

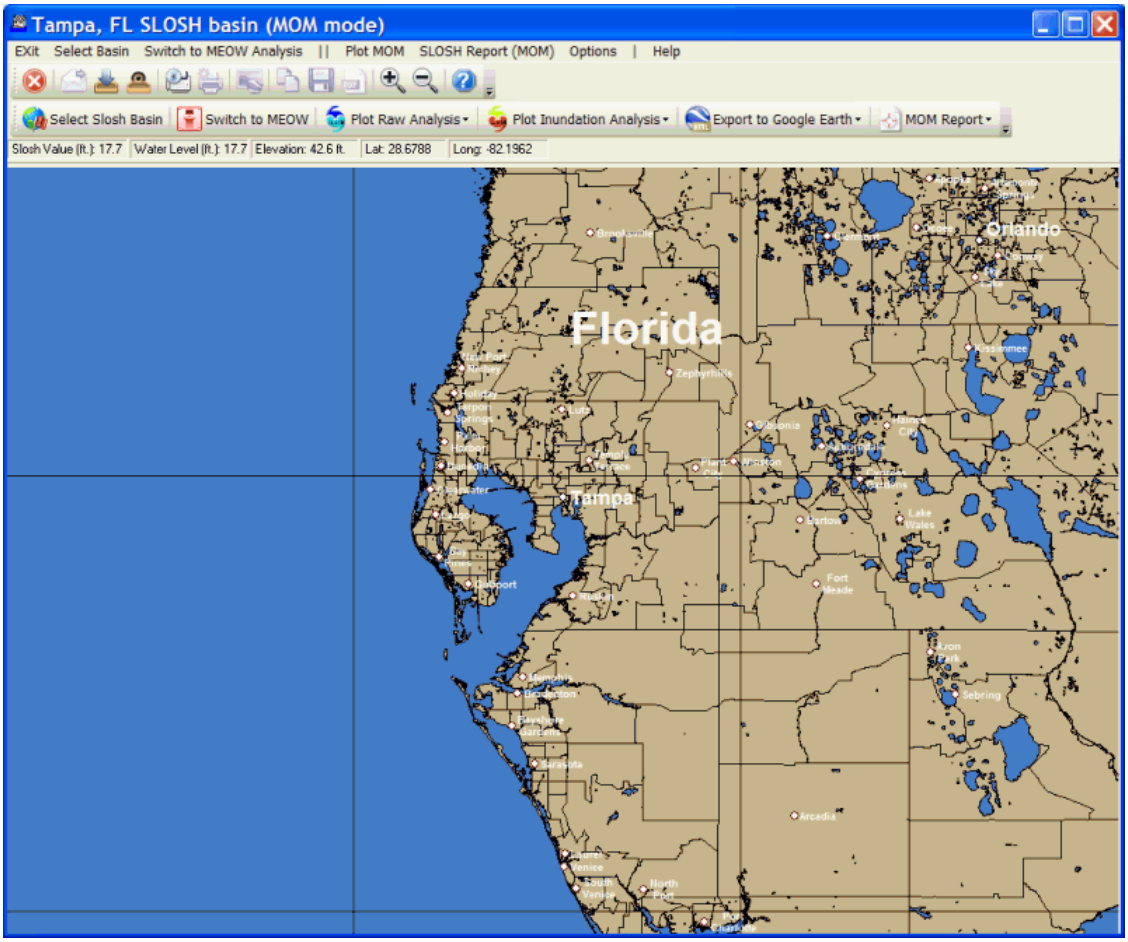


Finally, the user exports the Cat 4 MEOW polygons to Google Earth to view the data in 3D using the GE interface.


© 2009 Tele Atlas
Gray Buildings © 2008 Sanborn
© 2009 Europa Technologies
Data U.S. Navy
Google
Imagery Dates: Mar 2006 - Jul 5, 2007
lat 27.935521° lon -82.462711° elev 0 ft
Eye alt 1662 ft

Obviously, a certain amount of care must be taken when zooming down to very small (street level) maps. The SLOSH analysis and USGS data are not exact enough to narrow flooding areas down to individual streets.

SLOSHView Main Chart Select Display (MOM Mode)



When starting the SLOSHView Module, the program starts in SLOSH MOM mode and the SLOSH basin analyzed, when the program last closed, is presented (the initial default location is Miami, FL). You may use the left mouse button to zoom into the area of interest (use the right button to zoom out). When the desired map area is displayed, there are several menu and toolbar options available. They include:

Exit - Exits the SLOSHView program.

Select Basin – This option allows the user to select the SLOSH basin to examine. All of the available SLOSH basins are displayed, as well as the option to select the closest one to the currently displayed geographical area.

Switch to MEOW Analysis – This option allows the user to switch from MOM mode into MEOW mode.

Plot MOM

SLOSH (Raw) - Plots the raw SLOSH polygons for a certain category of storm without taking into account land elevation.

SLOSH (Inundation) – Plots the SLOSH inundation level (above ground level) for a certain category of storm, taking into account the elevation of the land

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Export SLOSH polygons to Google Earth – Exports the raw SLOSH polygons to GE with associated SLOSH level data. This allows the user to view SLOSH information with Google Earth's terrain feature.

SLOSH Report (MOM) - Allows the user to generate MOM inundation reports for a location group.

Options

Font - Displays the font control screen, as shown on page 67..

SLOSH - Displays the SLOSH options screen, as shown on page 246.

Optimize for Google Earth – This option only applies to the export of graphics to GE. It removes all streets and labels, so they do not interfere with the GE layers.

Mousepointer:

Show Picture Icon - Displays an icon of "flooding" home, which changes appearance as the inundation value changes.

Show SLOSH value - Displays the "raw" SLOSH value for that location for the last basin analyzed.

Show Inundation value - If the Digital Elevation Model (DEM) data was installed, this will display the inundation value for that location.

Show Elevation value - If the Digital Elevation Model (DEM) data was installed, this will display the elevation in feet of the cursor position. The DEM data only covers the Atlantic and Gulf Coast of the US, PR and the USVI.

Show Latitude value - Displays the latitude of the cursor position.

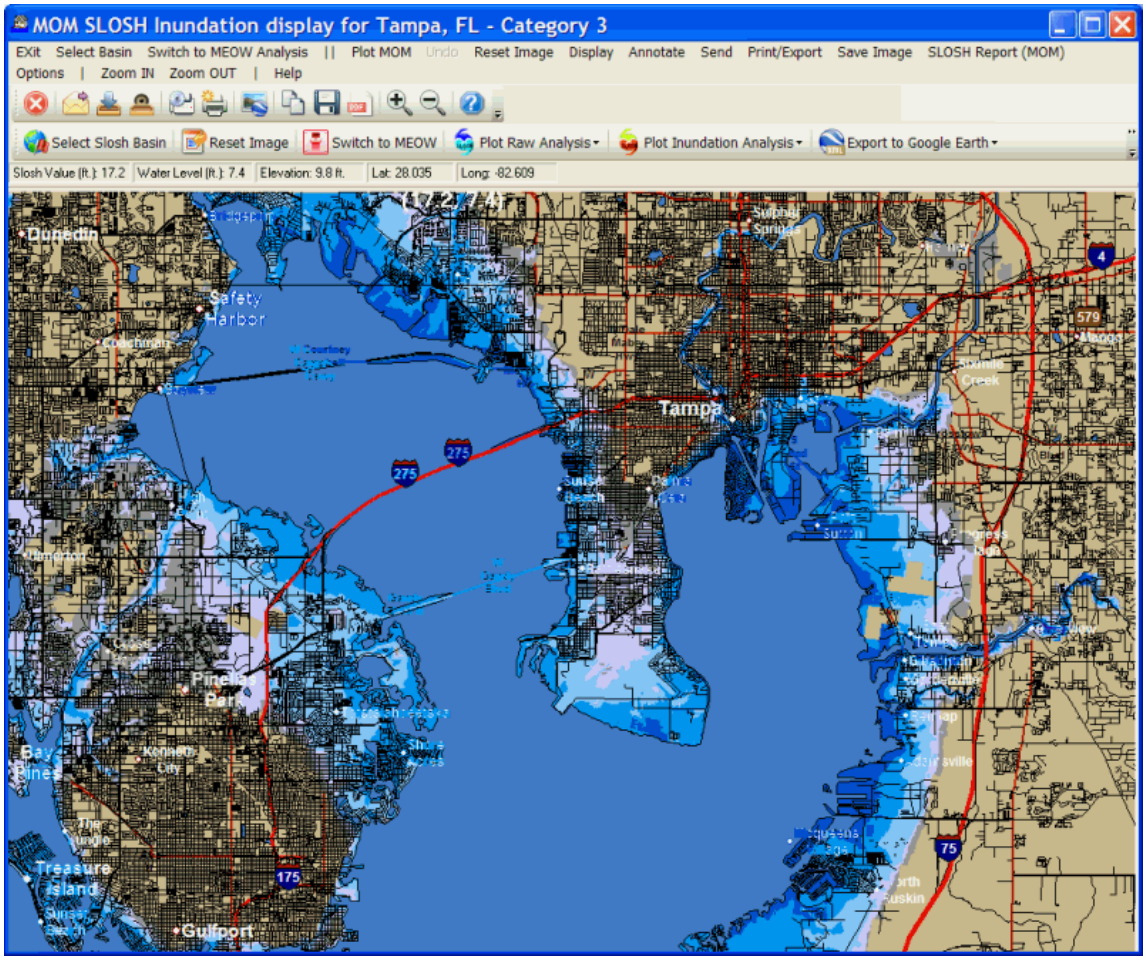
Show Longitude value - Displays the longitude of the cursor position.

Help - Displays help.

An additional set of options is available by right mouse clicking any area of the map image BEFORE plotting SLOSH. See page 247 for more information.

Street Atlas data is only available for the US Gulf and East Coastal States, as well as Hawaii, PR and the USVI

SLOSHView Data Display (MOM Mode)



While viewing SLOSH plots on a chart, there are several menu and toolbar options available. They include:

Exit - Exits system.

Select Basin – This option allows the user to select a different SLOSH basin. All of the available SLOSH basins are displayed, as well as the option to select the closest one to the currently displayed geographical area.

Switch to MEOW Analysis – This option allows the user to switch from MOM mode into MEOW mode.

Plot MOM

SLOSH (Raw) - Plots the raw SLOSH polygons for a certain category of storm without taking into account land elevation.

SLOSH (Inundation) – Plots the SLOSH inundation level (above ground level) for a certain category of storm, taking into account the elevation of the land

Export SLOSH polygons to Google Earth – Exports the raw SLOSH polygons to GE with associated SLOSH level data. This allows the user to view SLOSH information with Google Earth's terrain feature.

Undo - Removes last or all changes.

Reset Image - This option resets the image and returns the user to the chart selection mode.

Display

MOM Legend - Displays the color-coded SLOSH legend. The colors corresponding to SLOSH values are set in SLOSH Options.

Locations - Displays all of the locations in the selected location group. The text properties used for displaying the location names are set in Font Options.

County Names - Displays the county names for the US coastal states

Annotate - This option allows the user to add comments, etc. directly onto the tracking chart image. When Annotate is selected, whenever the mouse button is pressed, the user notes entry screen, shown above, is displayed. The text that is entered will appear at the position where the mouse button was pressed. The size, color, and other font properties used for the user notes are set in Font Options. Selecting End Annotate will return the mouse button function to its original function.

Send - Allows user to send image or PDF file via Email, as shown on page 156.

Print/Export - Allows the user to print or export the image.

Save Image - Allows the user to save the image..

SLOSH REPORT (MOM) – Allows the user to generate inundation reports for a SLOSH location group.

Options:

Font - Displays the font control screen.

SLOSH - Displays the SLOSH options screen, as shown on page 246.

Optimize for Google Earth – This option only applies to the export of graphics to GE. It removes all streets and labels, so they do not interfere with the GE layers.

Mousepointer:

Show Picture Icon - Displays an icon of "flooding" home, which changes appearance as the inundation value changes.

Show SLOSH value - Displays the "raw" SLOSH value for that location for the last basin analyzed.

Show Inundation value - If the Digital Elevation Model (DEM) data was installed, this will display the inundation value for that location.

Show Elevation value - If the Digital Elevation Model (DEM) data was installed, this will display the elevation, in feet, of the cursor position. The DEM data only covers the Atlantic and Gulf Coast of the US, PR and the USVI.

Show Latitude value - Displays the latitude of the cursor position.

Show Longitude value - Displays the longitude of the cursor position.

Help - Displays help.

After plotting SLOSH, you can zoom in by "rubber banding" an area with your mouse (left button) or by selecting zoom in or zoom out. The SLOSH information will re-plot at your new zoom level.

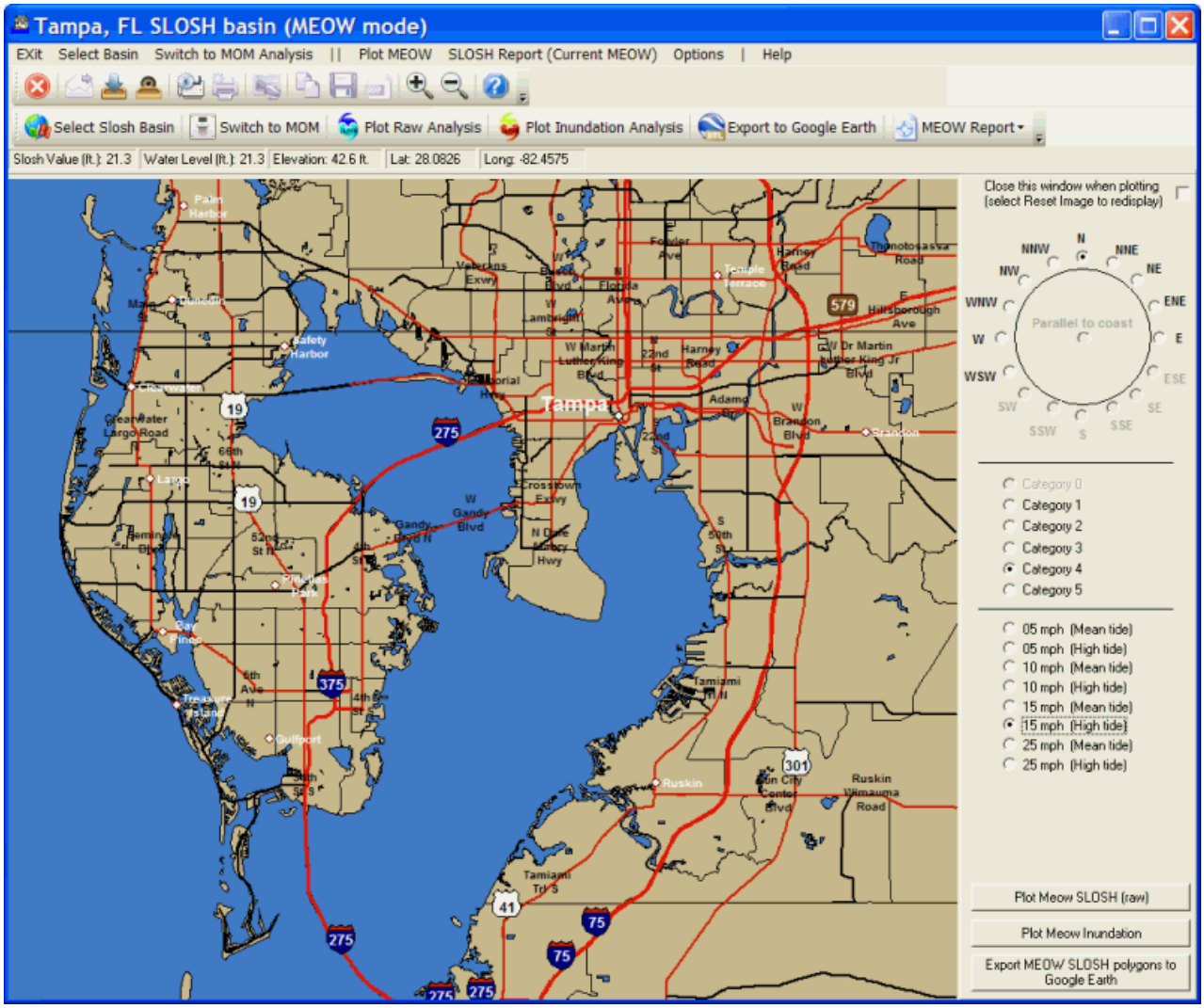
In addition, when plotting a MOM the following mouse actions will display the following information.

Left Click + Shift – Displays the raw SLOSH value

Right Click – Displays the Inundation level

Right Click + Shift – Places the "house" icon at the position of your cursor

SLOSHView Main Chart Select Display (MEOW Mode)



While switching to **SLOSH MEOM mode**, the options available are a little different because the user has to specify the storm motion and strength, so the system can display the correct MEOW. You may use the left mouse button to zoom into the area of interest (use the right button to zoom out). When the desired map area is displayed, there are several menu and toolbar options available. They include:

Exit - Exits the SLOSHView program.

Select Basin – This option allows the user to select the SLOSH basin to examine. All of the available SLOSH basins are displayed, as well as the option to select the closest one to the currently displayed geographical area.

Switch to MOM Analysis – This option allows the user to switch from MEOW mode into MOM mode.

Plot MEOW

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SLOSH (Raw) - Plots the raw SLOSH MEOW polygons for a certain category of storm, without taking into account land elevation.

SLOSH (Inundation) – Plots the SLOSH MEOW inundation level (above ground level) for a certain category of storm, taking into account the elevation of the land.

Export SLOSH polygons to Google Earth – Exports the raw SLOSH MEOW polygons to GE with associated SLOSH level data. This allows the user to view SLOSH information with Google Earth's terrain feature.

SLOSH Report (Current MEOW) - Allows the user to generate MEOW inundation reports for a location group. It will only report on locations that are in the current selected basin.

Options

Font - Displays the font control screen..

SLOSH - Displays the SLOSH options screen, as shown on page 246.

Optimize for Google Earth – This option only applies to the export of graphics to GE. It removes all streets and labels so they do not interfere with the GE layers.

Mousepointer:

Show Picture Icon - Displays an icon of "flooding" home, which changes appearance as the inundation value changes.

Show SLOSH value - Displays the "raw" SLOSH value for that location for the last basin analyzed.

Show Inundation value - If the Digital Elevation Model (DEM) data was installed, this will display the inundation value for that location.

Show Elevation value - If the Digital Elevation Model (DEM) data was installed, this will display the elevation in feet of the cursor position. The DEM data only covers the Atlantic and Gulf Coast of the US, PR and the USVI.

Show Latitude value - Displays the latitude of the cursor position.

Show Longitude value - Displays the longitude of the cursor position.

Help - Displays help.

In MEOW mode, an additional set of options is shown on the right side of the screen. They include:

Storm Motion Compass – Select the direction in which the storm situation being analyzed is moving. i.e. A storm moving towards the NNE should have NNE selected.

Storm Category – Select the category of the storm situation being analyzed.

Storm Speed/Tide – Select the storm's forward motion and tide (if available).

Command buttons available:

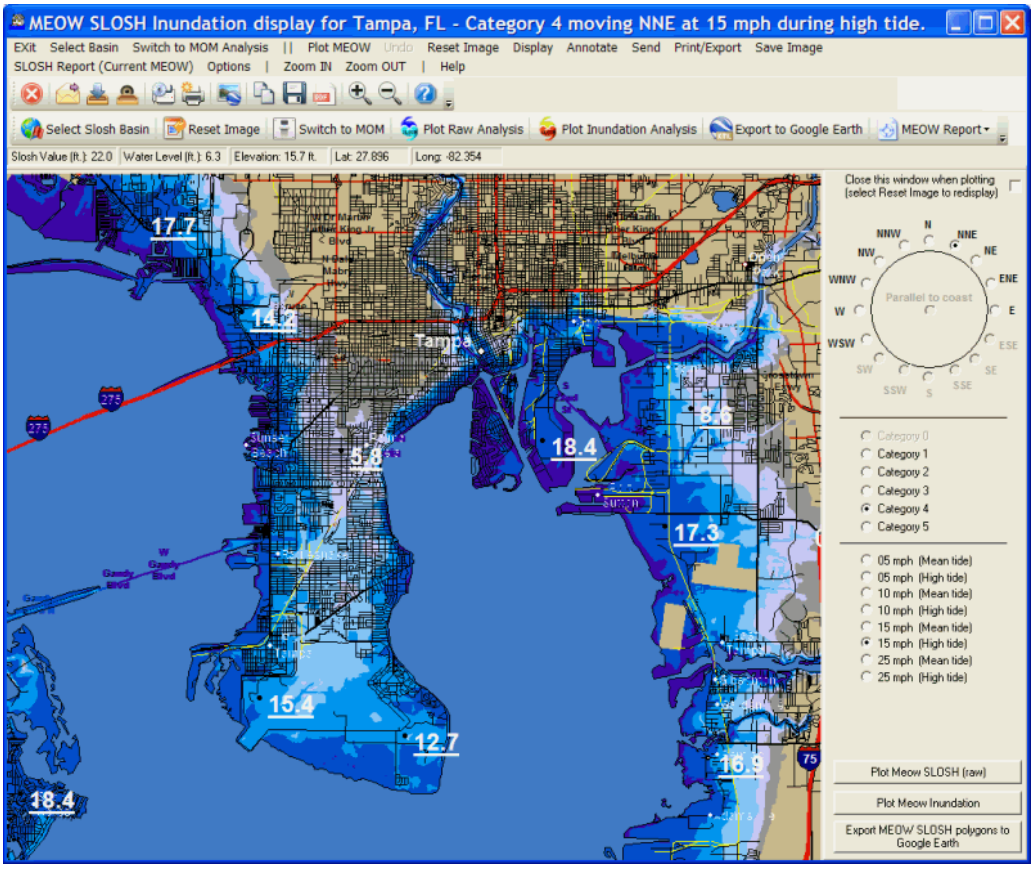
Plot MEOW SLOSH (raw) – This matches the Plot MEOW menu command and is put on the right side panel for convenience.

Plot MEOW Inundation – This matches the Plot MEOW menu command and is put on the right side panel for convenience.

Export MEOW SLOSH Polygons to Google Earth - This matches the Plot MEOW menu command and is put on the right side panel for convenience.

Finally, by checking the "Close this Window" option in the upper right hand portion of the panel, the right side panel will be hidden when doing the analysis. Selecting RESET Image will unhide the panel, so that the user can select different analysis options.

SLOSHView Data Display (MEOW mode)



While viewing SLOSH MEOW plots on a chart, there are several menu and toolbar options available. They include:

Exit - Exits system.

Select Basin – This option allows the user to select a different SLOSH basin. All of the available SLOSH basins are displayed, as well as the option to select the closest one to the currently displayed geographical area.

Switch to MEOW Analysis – This option allows the user to switch from MEOW mode into MOM mode.

Plot MEOW

SLOSH (Raw) - Plots the raw SLOSH MEOW polygons for a certain category of storm, without taking into account land elevation.

SLOSH (Inundation) – Plots the SLOSH MEOW inundation level (above ground level) for a certain category of storm, taking into account the elevation of the land.

Export SLOSH polygons to Google Earth – Exports the raw SLOSH MEOW polygons to GE with associated SLOSH level data. This allows the user to view SLOSH information with Google Earth's terrain feature.

Undo – Removes the last or all changes.

Reset Image - This option resets the image and returns the user to the chart selection mode.

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Display

MEOW Legend - Displays the color-coded SLOSH legend. The colors corresponding to SLOSH values are set in SLOSH Options.

Locations - Displays all of the locations in the selected location group. The text properties used for displaying the location names are set in Font Options.

County Names - Displays the county names for the US coastal states.

Annotate - This option allows the user to add comments, etc. directly onto the tracking chart image. When Annotate is selected, any time the mouse button is pressed, the user notes entry screen, shown above, is displayed. The text that is entered will appear at the position where the mouse button was pressed. The size, color and other font properties used for the user notes are set in Font Options. Selecting End Annotate will return the mouse button function to its original function.

Send - Allows user to send image or PDF file via Email, as shown on page 156.

Print/Export - Allows the user to print or export the image .
Save Image - Allows the user to save the image.
SLOSH Report (Current MEOW) - Allows the user to generate MEOW inundation reports for a location group. It will only report on locations that are in the current selected basin.

Options:

Font - Displays the font control screen.

SLOSH - Displays the SLOSH options screen, as shown on page 246.

Optimize for Google Earth – This option only applies to the export of graphics to GE. It removes all streets and labels, so they do not interfere with the GE layers.

Mousepointer:

Show Picture Icon - Displays an icon of "flooding" home, which changes appearance as the inundation value changes.

Show SLOSH value - Displays the "raw" SLOSH value for that location for the last basin analyzed.

Show Inundation value - If the Digital Elevation Model (DEM) data was installed, this will display the inundation value for that location.

Show Elevation value - If the Digital Elevation Model (DEM) data was installed, this will display the elevation in feet of the cursor position. The DEM data only covers the Atlantic and Gulf Coast of the US, PR and the USVI.

Show Latitude value - Displays the latitude of the cursor position.

Show Longitude value - Displays the longitude of the cursor position.

Help - Displays help.

After plotting SLOSH, you can zoom in by "rubber banding" an area with your mouse (left button) or by selecting zoom in or zoom out. The SLOSH information will re-plot at your new zoom level.

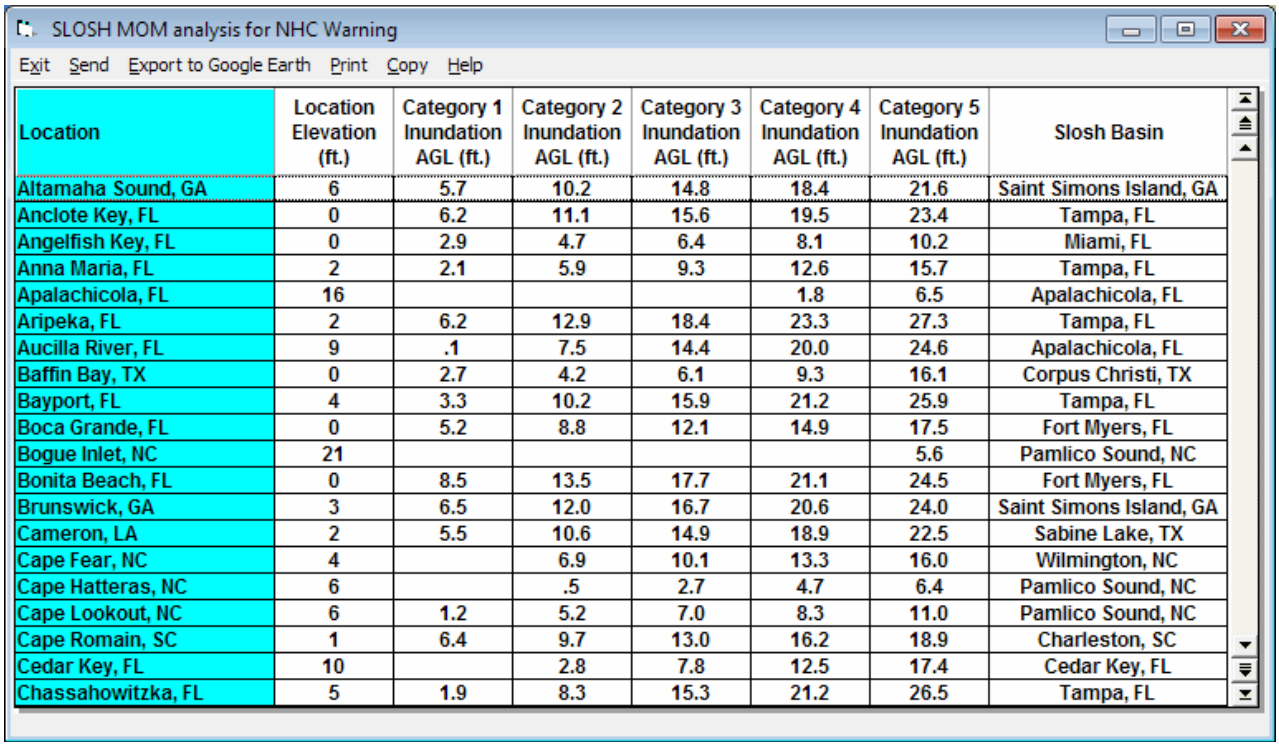
In addition, when plotting a MOM the following mouse actions will display the following information.

Left Click + Shift – Displays the raw SLOSH value

Right Click – Displays the Inundation level

Right Click + Shift – Places the "house" icon at the position of your cursor

SLOSH REPORT



Location	Location Elevation (ft.)	Category 1 Inundation AGL (ft.)	Category 2 Inundation AGL (ft.)	Category 3 Inundation AGL (ft.)	Category 4 Inundation AGL (ft.)	Category 5 Inundation AGL (ft.)	Slosh Basin
Altamaha Sound, GA	6	5.7	10.2	14.8	18.4	21.6	Saint Simons Island, GA
Anclote Key, FL	0	6.2	11.1	15.6	19.5	23.4	Tampa, FL
Angelfish Key, FL	0	2.9	4.7	6.4	8.1	10.2	Miami, FL
Anna Maria, FL	2	2.1	5.9	9.3	12.6	15.7	Tampa, FL
Apalachicola, FL	16				1.8	6.5	Apalachicola, FL
Aripeka, FL	2	6.2	12.9	18.4	23.3	27.3	Tampa, FL
Aucilla River, FL	9	.1	7.5	14.4	20.0	24.6	Apalachicola, FL
Baffin Bay, TX	0	2.7	4.2	6.1	9.3	16.1	Corpus Christi, TX
Bayport, FL	4	3.3	10.2	15.9	21.2	25.9	Tampa, FL
Boca Grande, FL	0	5.2	8.8	12.1	14.9	17.5	Fort Myers, FL
Bogue Inlet, NC	21					5.6	Pamlico Sound, NC
Bonita Beach, FL	0	8.5	13.5	17.7	21.1	24.5	Fort Myers, FL
Brunswick, GA	3	6.5	12.0	16.7	20.6	24.0	Saint Simons Island, GA
Cameron, LA	2	5.5	10.6	14.9	18.9	22.5	Sabine Lake, TX
Cape Fear, NC	4		6.9	10.1	13.3	16.0	Wilmington, NC
Cape Hatteras, NC	6		.5	2.7	4.7	6.4	Pamlico Sound, NC
Cape Lookout, NC	6	1.2	5.2	7.0	8.3	11.0	Pamlico Sound, NC
Cape Romain, SC	1	6.4	9.7	13.0	16.2	18.9	Charleston, SC
Cedar Key, FL	10		2.8	7.8	12.5	17.4	Cedar Key, FL
Chassahowitzka, FL	5	1.9	8.3	15.3	21.2	26.5	Tampa, FL

The SLOSH REPORT show the potential inundation levels (ft ASL) for specific locations. It can be run in both MOM and MEOW mode. The only difference is that, while in MEOW mode, the report will only include locations "within" the currently selected basin's area.

In order to create a Slosh Report, the user must do one of the following:

1 From System Setup, location maintenance, define a SLOSH location group, associating it to a SLOSH basin. See page 197.
2 Associate specific locations to this location group. See page 198.
3 If desired, specify the elevation for the locations added to the location group. See page 187.
4 From SloshView, select Slosh Report.

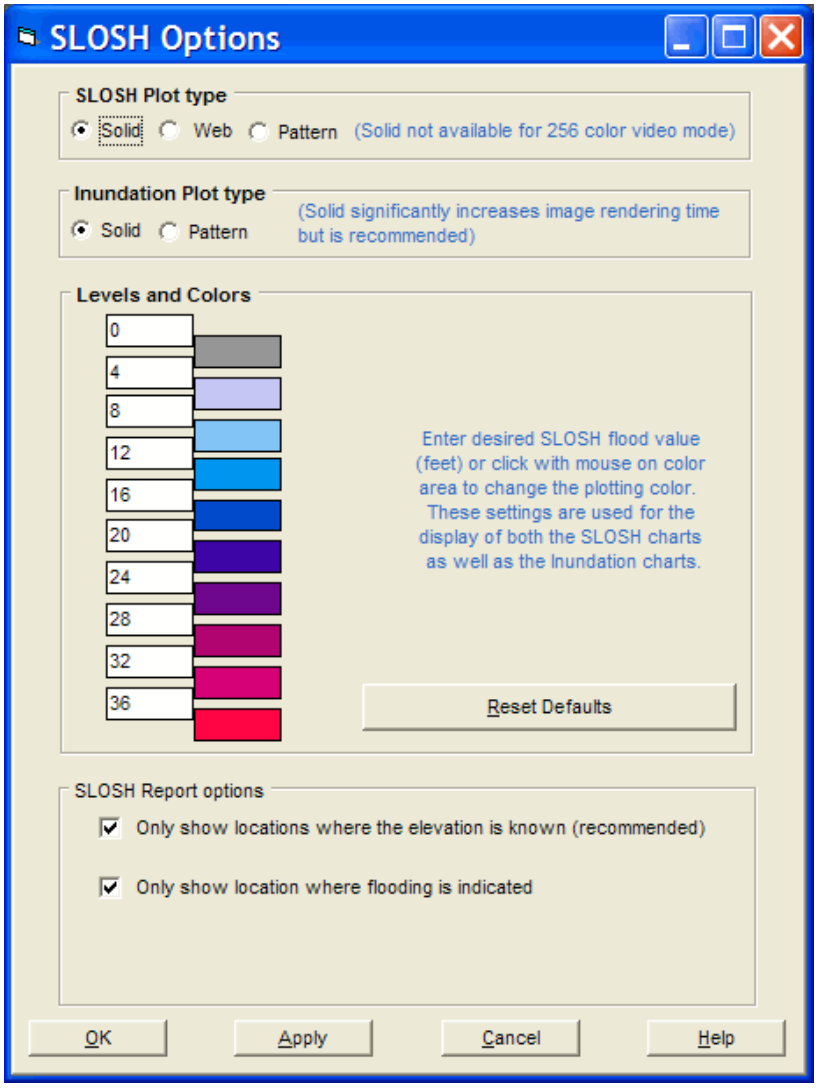
OR

From SloshView, select SLOSH report for any location group. Make sure that the location in this group has been accurately defined for location and elevation.

You can send, print, copy or Export this report to Google Earth.

In MOM mode, locations without designated SLOSH basins will be assigned one by the system based on distance (i.e. the system will pick the closest one). Caution must be exercised when viewing the results of this data, as the SLOSH analysis errors increase as the location's distance from the SLOSH basin "center" increases.

Slosh / Inundation Options



SLOSH Plot type - This allows the user to control the look of the SLOSH analysis. The 3 options are solid, web, and pattern. Experiment with each type with varying sized maps to determine which one you prefer, but we suggest solid.

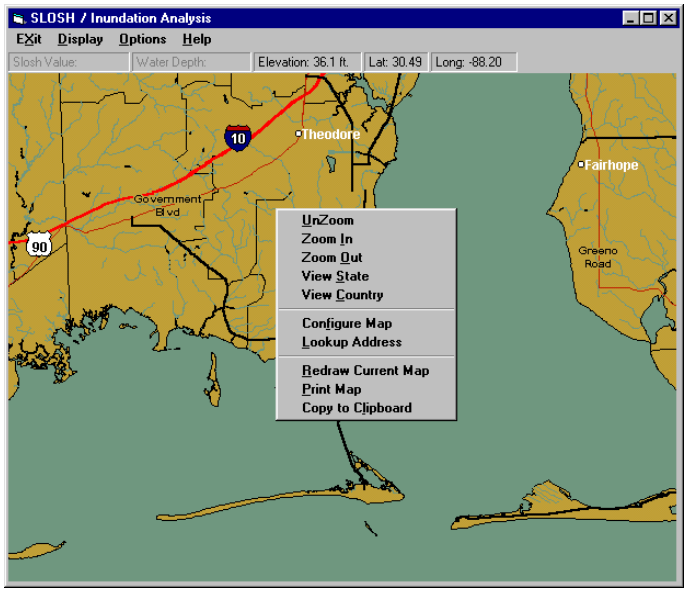
Inundation Plot type - This allows the user to control the look of the SLOSH Inundation analysis. The 2 options are solid and pattern. Experiment with each type with varying sized maps to determine which one you prefer, but we suggest solid

MOM/MEOW plotting levels and colors - This allows the user to control the SLOSH values and associated colors used when doing a SLOSH analysis (regular or inundation). The values are in feet and any color can be selected.

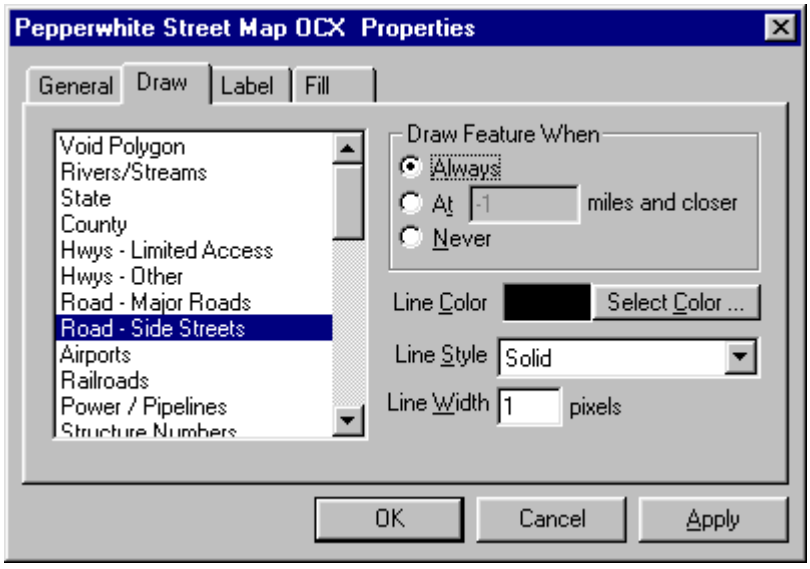
SLOSH Report options - These options control which locations will appear on a SLOSH report. It is suggested you keep both option checked.

Right Click Commands

The SLOSHView system uses a 3rd party software product called Pepperwhite Streets™. When you right click on the screen, you are presented with several options (shown below). Most of them are self-explanatory, except for Configure Map and Look Up Address. **In the Hurrtrak module, the base mapping control is only visible via the Map Selection Tab.**



When you select **Configure Map,** you are presented with a separate screen that has many options related to what will be drawn on the current map. Review them and experiment to understand their function. Modifications done to these setting are only valid for the current session.



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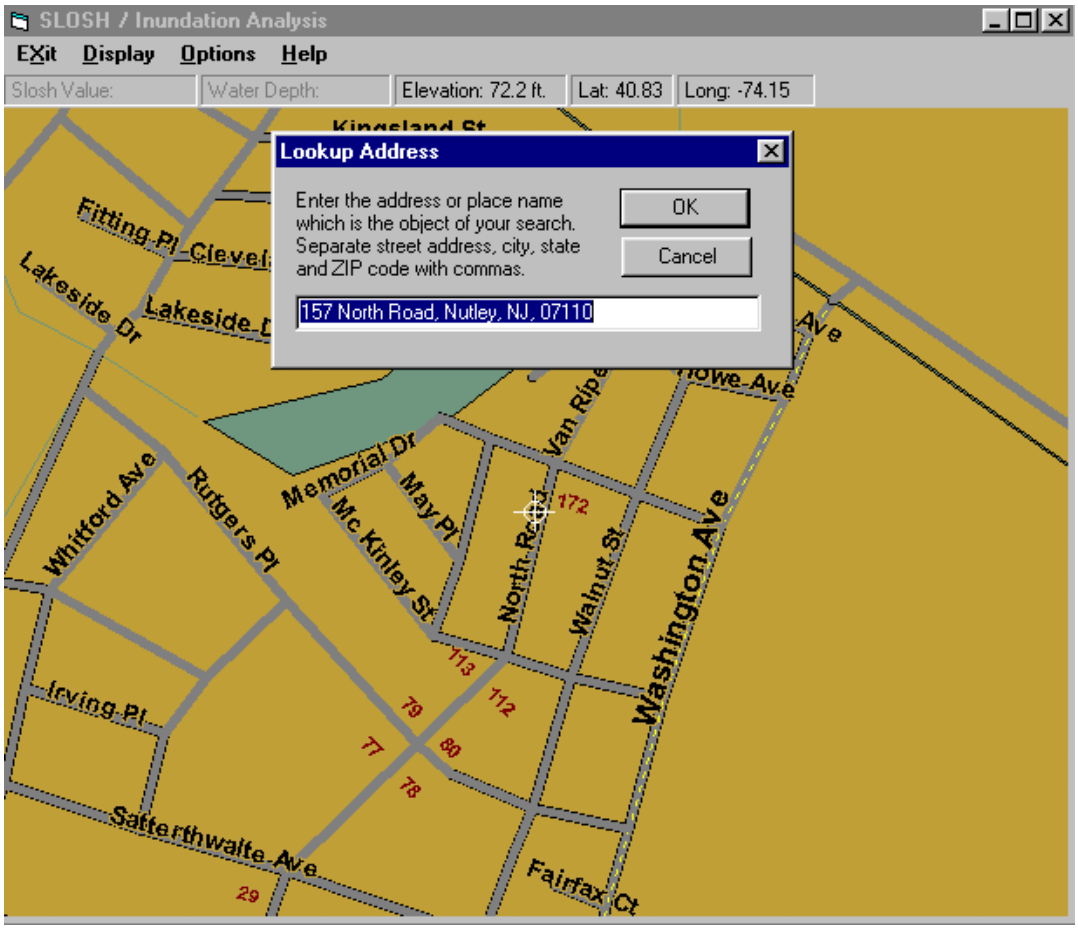
When you select **Look up Address**, you are presented with an entry screen which allows you to enter a complete address. If this address is found in the database, that map area will be shown. An example of a data entry line and the map it created is shown below.



Street Atlas data is only available for the US Gulf and East Coastal States, as well as Hawaii, PR and the USVI.

SLOSHView Considerations

Performance:

Due to the large number of calculations required to do a SLOSHView analysis, performance may be a consideration. An inundation analysis performed on a 1024 X 768 chart will result in 786,432 separate inundation calculation iterations. If you want to speed up the analysis, there are 4 ways to improve performance:

1. Get the fastest processor you can ☺
2. Run your system in true color mode (24+ bit).
3. Smaller maps. A 640 X 480 map will do 60% fewer calculations than a 1024x768 one.
4. Run the system local and not through a network server.

DETAILS:

While it is tempting to "zoom" down to a very detailed "street" level of chart, it is dangerous to go too far. Neither the SLOSH data nor the elevation data is resolved to a sufficient level of detail to do these street level comparisons. Some of this is dependent on how far the area being analyzed is from the SLOSH basin center, in addition to the topographical nature of the area.

H*Wind Display

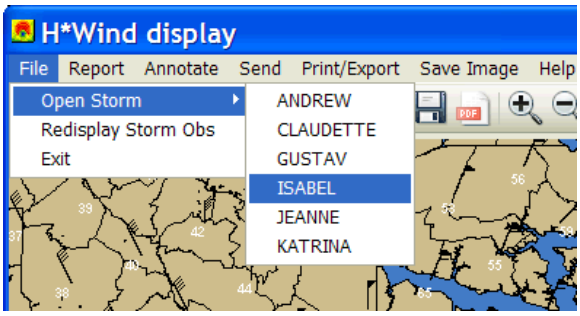
The NOAA's Atlantic Oceanographic and Meteorological Laboratory (AOML), Hurricane Research Division operates the H*Wind Project. The purpose is to devise computer programs to integrate wind data in and around a hurricane from a variety of platforms into a single wind analysis reduced to the surface. See http://www.aoml.noaa.gov/hrd/Storm_pages/surf_background.html for more information.

H*Wind display provides an interactive way to view this data, as well as to do some impact analysis.

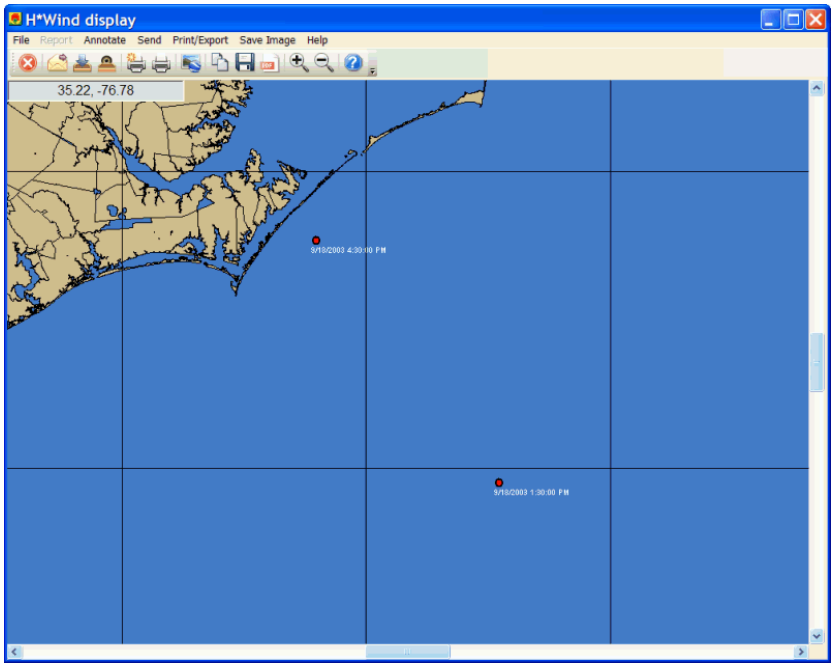
Important: H*Wind data is imported into the system via Hurrtrak Online. The user must manually request the latest H*Wind data via the HURRTRAK ONLINE Tab in the HURRTRAK system.

Availability: Because this is not NHC operational data, but rather experimental data put out by AOML, data availability is highly variable and at the discretion of AOML. We will make data available as it becomes available to the "public" at the AOML web site.

When the H*Wind display system is started, if data exists in the H*Wind database, the user will have the option of opening a "storm".



When a storm (Isabel) is opened, the user is presented with the following screen.



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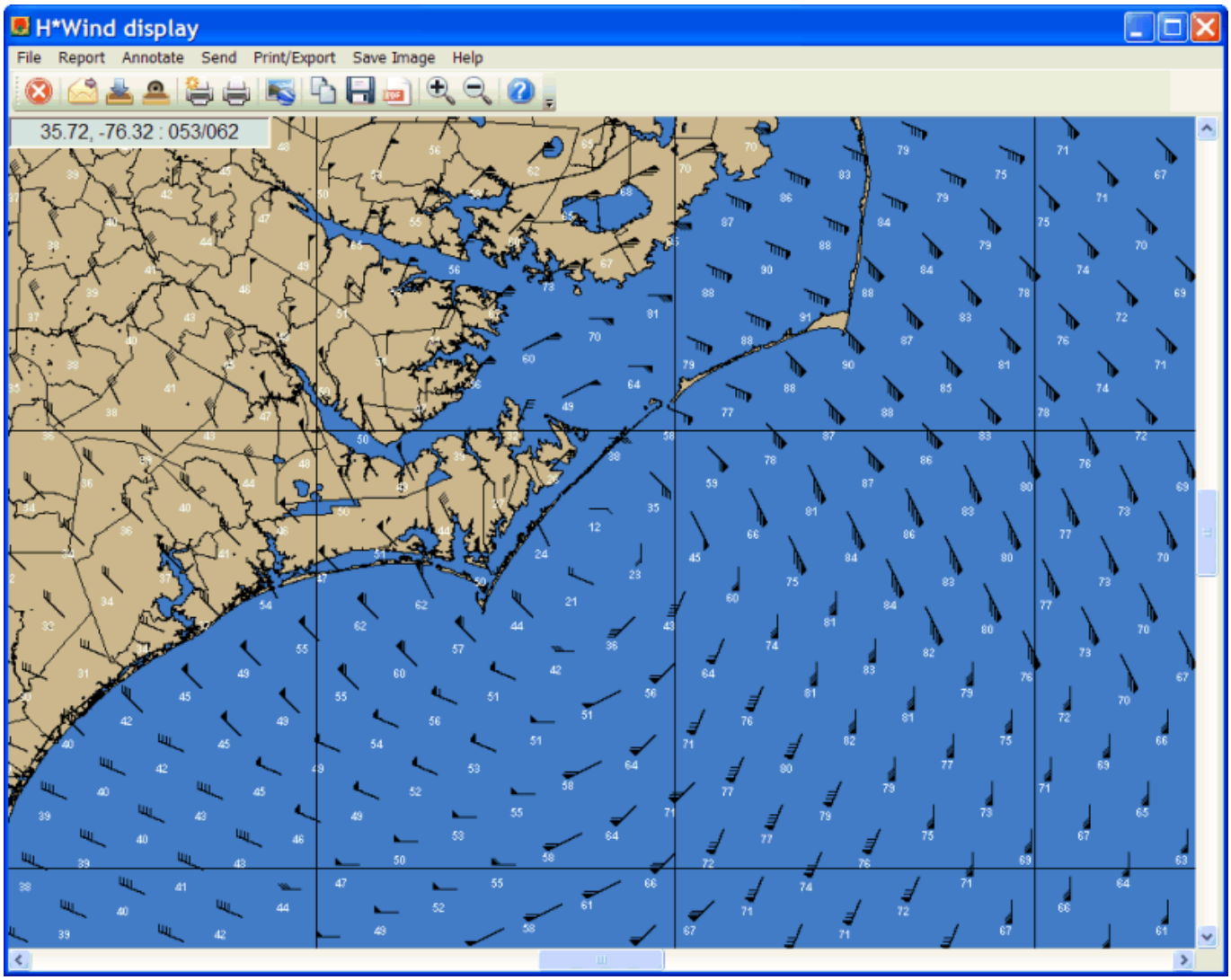
The user can then select a specific observation by left clicking on the observation point (storm center). After selecting, the following screen is presented showing some of this storm's H*Wind observation data. Point wind direction (arrows) and speed (in knots) are displayed. Zooming in or out will display more or less information (see Pan and Zoom mapping for more information). In addition, mouse cursor position information of latitude, longitude, wind speed and direction are shown in the information box in the upper left corner.



File - This allows the user to open a new storm, redisplay observations for the current storm, or Exit the system.
Report – This displays the H*Wind impact report, which details "current" wind conditions for a location group, counties or zip codes. See sample on next page.
Annotate – This allows the user to enter comment in a text box.
Send – This allows the user to send this image via email.
Print/Export – This allows the user to print this image or export to Google Earth.
Save Image – This allows the user to save this image to a graphic or PDF file.
Help – Displays help information about H*Wind.

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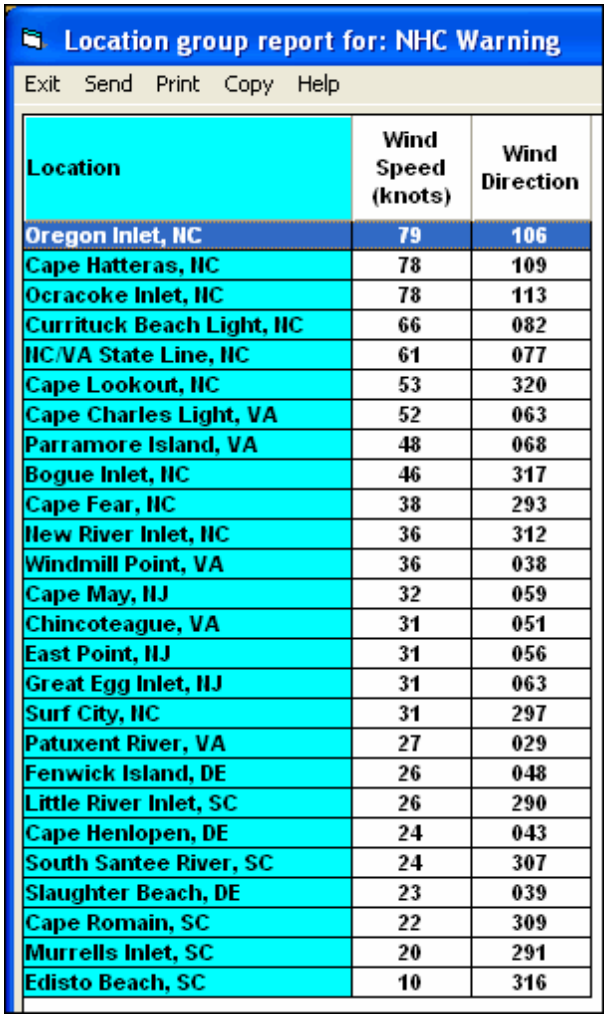
H*Wind Report

The H*Wind impact report details "current" wind conditions for a location group, counties or zip codes.



Location	Wind Speed (knots)	Wind Direction
Oregon Inlet, NC	79	106
Cape Hatteras, NC	78	109
Ocracoke Inlet, NC	78	113
Currituck Beach Light, NC	66	082
NC/VA State Line, NC	61	077
Cape Lookout, NC	53	320
Cape Charles Light, VA	52	063
Parramore Island, VA	48	068
Bogue Inlet, NC	46	317
Cape Fear, NC	38	293
New River Inlet, NC	36	312
Windmill Point, VA	36	038
Cape May, NJ	32	059
Chincoteague, VA	31	051
East Point, NJ	31	056
Great Egg Inlet, NJ	31	063
Surf City, NC	31	297
Patuxent River, VA	27	029
Fenwick Island, DE	26	048
Little River Inlet, SC	26	290
Cape Henlopen, DE	24	043
South Santee River, SC	24	307
Slaughter Beach, DE	23	039
Cape Romain, SC	22	309
Murrells Inlet, SC	20	291
Edisto Beach, SC	10	316

While viewing the report, there are several menu options available. They include:

Exit - Closes this window.

Send - Sends this report via email.

Print - Prints this report.

Copy - Copies the report content to the clipboard.

Help - Displays this help.

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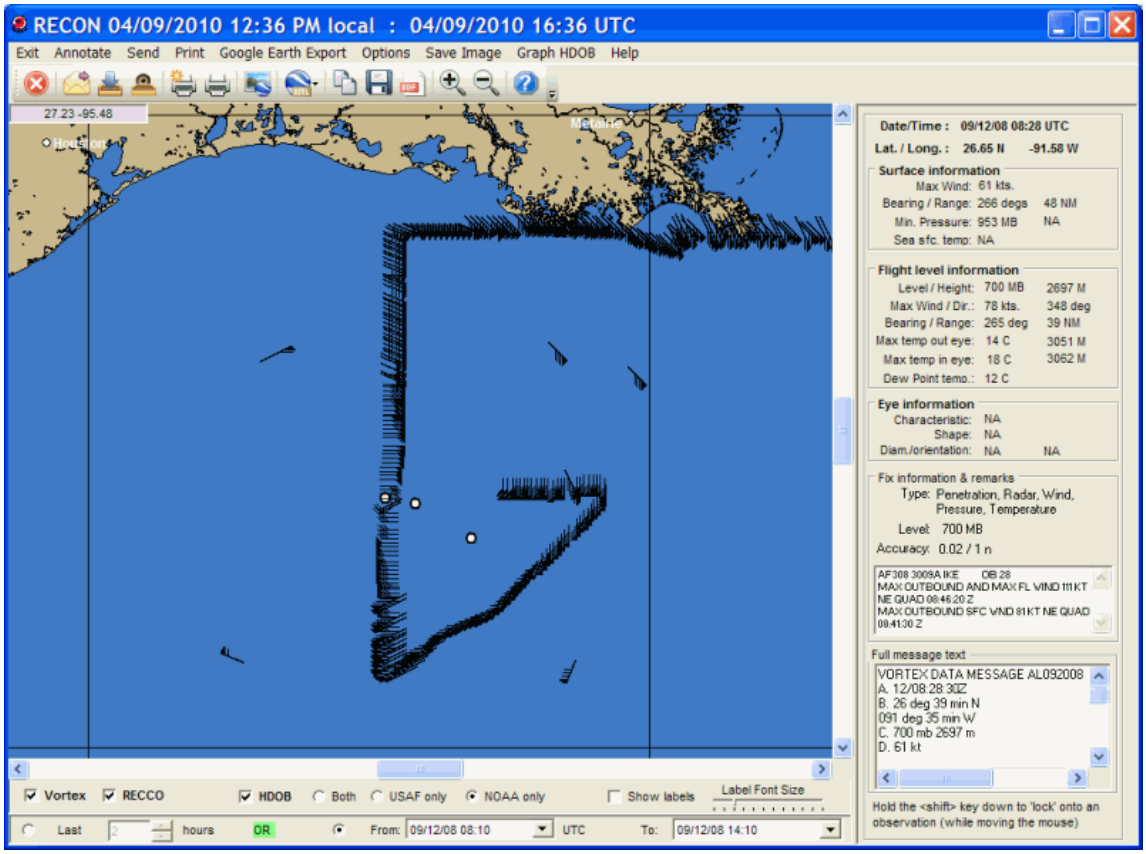
Hurricane Reconnaissance


RECON 04/09/2010 12:36 PM local : 04/09/2010 16:36 UTC
Exit Annotate Send Print Google Earth Export Options Save Image Graph HDOB Help
Date/Time : 09/12/08 08:28 UTC
Lat. / Long. : 26.65 N -91.58 W
Surface information
Max Wind: 61 kts.
Bearing / Range: 266 degs 48 NM
Min. Pressure: 953 MB NA
Sea sfc. temp: NA
Flight level information
Level / Height: 700 MB 2697 M
Max Wind / Dir.: 78 kts. 348 deg
Bearing / Range: 265 deg 39 NM
Max temp out eye: 14 C 3051 M
Max temp in eye: 18 C 3062 M
Dew Point temp.: 12 C
Eye information
Characteristic: NA
Shape: NA
Diam./orientation: NA NA
Fix information & remarks
Type: Penetration, Radar, Wind, Pressure, Temperature
Level: 700 MB
Accuracy: 0.02 / 1 n
Full message text
VORTEX DATA MESSAGE AL092008
A. 12/08:28:30Z
B. 26 deg 39 min N
091 deg 35 min W
C. 700 mb 2697 m
D. 61 kt
Vortex RECCO HDOB Both USAF only NOAA only Show labels Label Font Size
Last hours OR From: 09/12/08 08:10 UTC To: 09/12/08 14:10
Hold the <shift> key down to 'lock' onto an observation (while moving the mouse)

When the hurricane reconnaissance program is started, the user is presented with a screen similar to the above screen. At this point, the user can select the mapping area they are interested in (see page 299 for more information) and then perform the program functions.

The reconnaissance data is downloaded via the HURRTRAK ONLINE service. By setting the HURRTRAK ONLINE Automatic Data polling option, the system will check for new data on a regular basis. You can also manually retrieve the data via the Hurrtrak Online tab options.

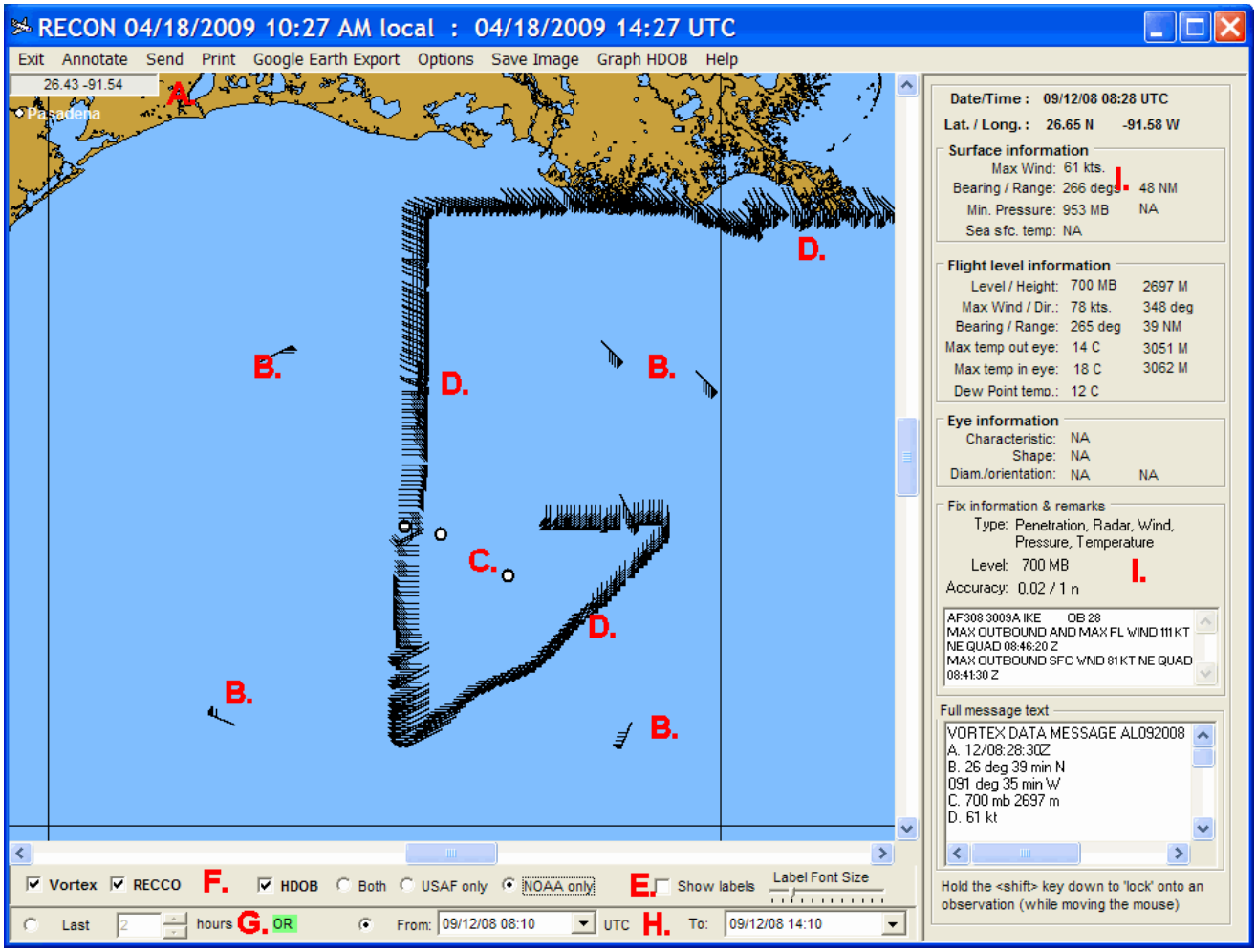
There are 3 types of recon reports that the program displays.

Vortex - Summarizes hurricane data, to include the location of the eye (the "fix"), the minimum central pressure, maximum winds on the way into the eye, temperature inside and outside of the eye, etc.

RECCO - A line of weather data observed by the weather officer, usually every 30 minutes enroute, and at the turnpoints in the storm. Typically, only the first eight groups are encoded, but on rare occasions clouds, radar and surface winds are included.

HDOB (High Density) – The NOAA and USAF recon flights often include observations at 30 seconds intervals as they flight in and around the storm. This information includes the flight level conditions and often the surface estimates of wind speed and pressure. At normal flight conditions this provides a data point approximately every 2 miles.

An explanation of the key items shown in the recon program is shown below.


RECON 04/18/2009 10:27 AM local : 04/18/2009 14:27 UTC
Exit Annotate Send Print Google Earth Export Options Save Image Graph HDOB Help
26.43 -91.54
Pasadena
A.
B.
C.
D.
Date/Time : 09/12/08 08:28 UTC
Lat. / Long. : 26.65 N -91.58 W
Surface information
Max Wind: 61 kts.
Bearing / Range: 266 deg 48 NM
Min. Pressure: 953 MB NA
Sea sfc. temp: NA
I.
Flight level information
Level / Height: 700 MB 2697 M
Max Wind / Dir.: 78 kts. 348 deg
Bearing / Range: 265 deg 39 NM
Max temp out eye: 14 C 3051 M
Max temp in eye: 18 C 3062 M
Dew Point temp.: 12 C
Eye information
Characteristic: NA
Shape: NA
Diam./orientation: NA NA
Fix information & remarks
Type: Penetration, Radar, Wind, Pressure, Temperature
Level: 700 MB
Accuracy: 0.02 / 1 n
AF308 3009A IKE OB 28
MAX OUTBOUND AND MAX FL WIND 111 KT NE QUAD 08:46:20 Z
MAX OUTBOUND SFC WND 81 KT NE QUAD 08:41:30 Z
Full message text
VORTEX DATA MESSAGE AL092008
A. 12/08:28:30Z
B. 26 deg 39 min N
091 deg 35 min W
C. 700 mb 2697 m
D. 61 kt
Hold the <shift> key down to 'lock' onto an observation (while moving the mouse)
Vortex RECCO F. HDOB Both USAF only NOAA only E. Show labels Label Font Size
Last 2 hours G. OR From: 09/12/08 08:10 UTC H. To: 09/12/08 14:10

A. This displays the latitude and longitude of the cursor position.

B. These isolated reports represent non-vortex type recon reports. The wind speed and direction of the report is indicated and the remaining items are decoded on the right information panel.

C. The circle represents the storm's vortex center (eye in well-defined storms). By passing the mouse over this area, the report is decoded on the right information panel.

D. The NOAA and USAF recon flights often include observations at 30 seconds intervals as they flight in and around the storm. This information includes the flight level conditions and often the surface estimates of wind speed and pressure. At normal flight conditions this provides a data point approximately every 2 miles.

E. These options control whether to show the observation labels and what size font to use when displaying them.

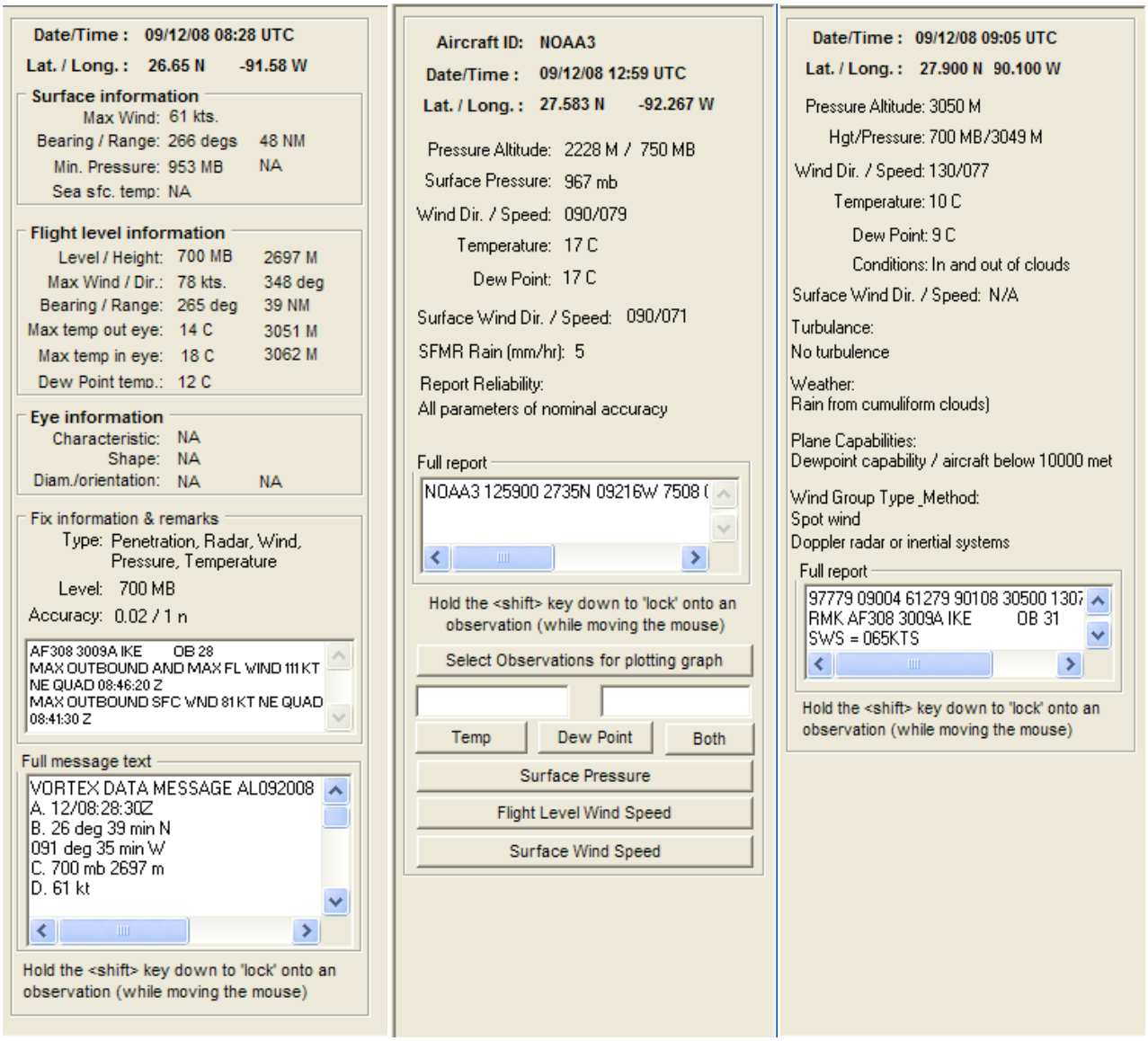
F. This option allows the user to identify what types of recon reports to show. The options are the Vortex, RECCO and HDOB (High Density) reports. In addition, the user can specify whether to show the USAF and/or the NOAA HDOB flight data.

G. This option instructs the system to display only the recon reports received in the last x hours... where x is selected by the user.

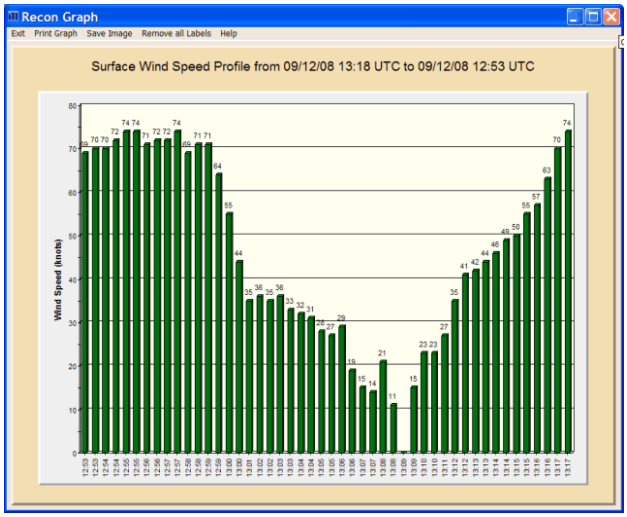
H. The user can also select "older" recon reports by selecting a “from” and “to” date range. All reports that fall inside this range will be displayed.

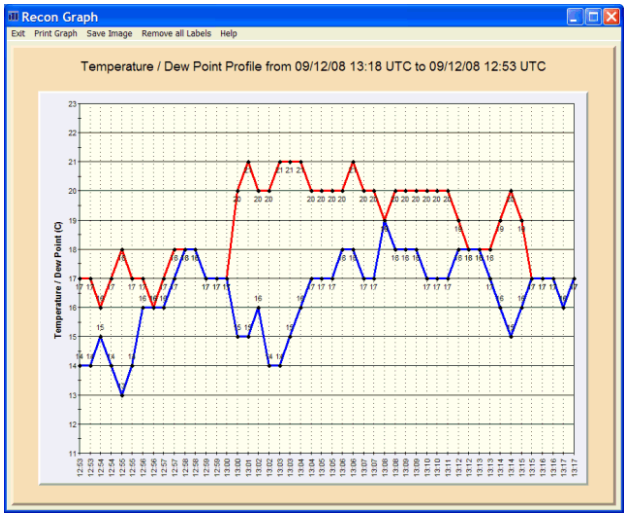
I. The right information panel displays the decoded information for vortex, High Density and RECCO reports. The decoded information displayed varies based on which report is being pointed to with the mouse. An example of each is shown below.

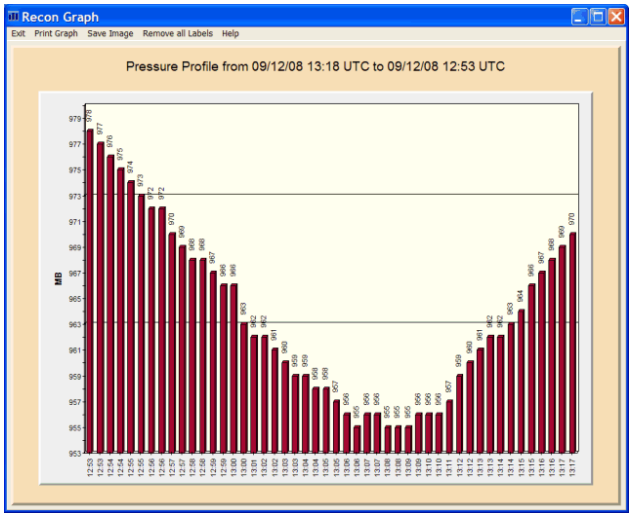
Vortex | **HDOB (High Density)** | **RECCO**


Date/Time : 09/12/08 08:28 UTC
Lat. / Long. : 26.65 N -91.58 W
Surface information
Max Wind: 61 kts.
Bearing / Range: 266 degs 48 NM
Min. Pressure: 953 MB NA
Sea sfc. temp: NA
Flight level information
Level / Height: 700 MB 2697 M
Max Wind / Dir.: 78 kts. 348 deg
Bearing / Range: 265 deg 39 NM
Max temp out eye: 14 C 3051 M
Max temp in eye: 18 C 3062 M
Dew Point temp.: 12 C
Eye information
Characteristic: NA
Shape: NA
Diam./orientation: NA NA
Fix information & remarks
Type: Penetration, Radar, Wind, Pressure, Temperature
Level: 700 MB
Accuracy: 0.02 / 1 n
AF308 3009A IKE OB 28
MAX OUTBOUND AND MAX FL WIND 111 KT NE QUAD 08:46:20 Z
MAX OUTBOUND SFC WND 81 KT NE QUAD 08:41:30 Z
Full message text
VORTEX DATA MESSAGE AL092008
A. 12/08:28:30Z
B. 26 deg 39 min N
091 deg 35 min W
C. 700 mb 2697 m
D. 61 kt
Hold the <shift> key down to 'lock' onto an observation (while moving the mouse)
Aircraft ID: NOAA3
Date/Time : 09/12/08 12:59 UTC
Lat. / Long. : 27.583 N -92.267 W
Pressure Altitude: 2228 M / 750 MB
Surface Pressure: 967 mb
Wind Dir. / Speed: 090/079
Temperature: 17 C
Dew Point: 17 C
Surface Wind Dir. / Speed: 090/071
SFMR Rain (mm/hr): 5
Report Reliability:
All parameters of nominal accuracy
Full report
NOAA3 125900 2735N 09216W 7508 (
Hold the <shift> key down to 'lock' onto an observation (while moving the mouse)
Select Observations for plotting graph
Temp
Dew Point
Both
Surface Pressure
Flight Level Wind Speed
Surface Wind Speed
Date/Time : 09/12/08 09:05 UTC
Lat. / Long. : 27.900 N 90.100 W
Pressure Altitude: 3050 M
Hgt/Pressure: 700 MB/3049 M
Wind Dir. / Speed: 130/077
Temperature: 10 C
Dew Point: 9 C
Conditions: In and out of clouds
Surface Wind Dir. / Speed: N/A
Turbulance:
No turbulence
Weather:
Rain from cumuliform clouds)
Plane Capabilities:
Dewpoint capability / aircraft below 10000 met
Wind Group Type _Method:
Spot wind
Doppler radar or inertial systems
Full report
97779 09004 61279 90108 30500 1307
RMK AF308 3009A IKE OB 31
SWS = 065KTS
Hold the <shift> key down to 'lock' onto an observation (while moving the mouse)

Additional HDOB capabilities include the ability to plot the graph of wind speed, temperature/pressure and pressure/height of the pass through the storm. The user must select the first and last observation they would like to analyze and then select the plotting option. See the examples below.


Recon Graph
Exit Print Graph Save Image Remove all Labels Help
Surface Wind Speed Profile from 09/12/08 13:18 UTC to 09/12/08 12:53 UTC
Wind Speed (knots)


Recon Graph
Exit Print Graph Save Image Remove all Labels Help
Temperature / Dew Point Profile from 09/12/08 13:18 UTC to 09/12/08 12:53 UTC
Temperature / Dew Point (C)


Recon Graph
Exit Print Graph Save Image Remove all Labels Help
Pressure Profile from 09/12/08 13:18 UTC to 09/12/08 12:53 UTC
MB

While using the reconnaissance program, the following options are available:

Exit - Closes this window.

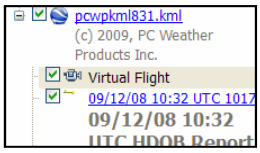
Annotate - The annotate feature here is identical to the one described earlier.

Send - Sends the current image to an Email recipient

Print – Several print options which allow the user to print as a color or gray scale image.

Google Earth Export:

Export Static Image to Google Earth - Exports the current image and displays as an overlay on Google Earth.
Export Vortex reports – Exports the displayed vortex reports via KML to Google Earth.
Export RECCO reports - Exports the currently displayed RECCO reports, via KML, to Google Earth.
Export HDOB reports - Export the currently displayed High Density reports, via KML, to Google Earth.
Export All reports - Exports the displayed Vortex, RECCO and High Density reports, via KML, to Google Earth.
Export HDOB with virtual flight - This is a special type of export. It exports the displayed HDOB reports to Google Earth, via KML, and also generates a GE tour which we call a virtual flight. It start the tour you must double click on the "virtual flight" item within the exported KML file. See image below.



Export Animated HDOB - This option is similar to the export HDOB reports option above except the observations are exported with date/time stamps, allowing the user to display the observations in an animated fashion. Within Google Earth, the user must manually start the animation.

Options – This allows the user to switch between plotting flight level wind barbs or surface level wind barbs.

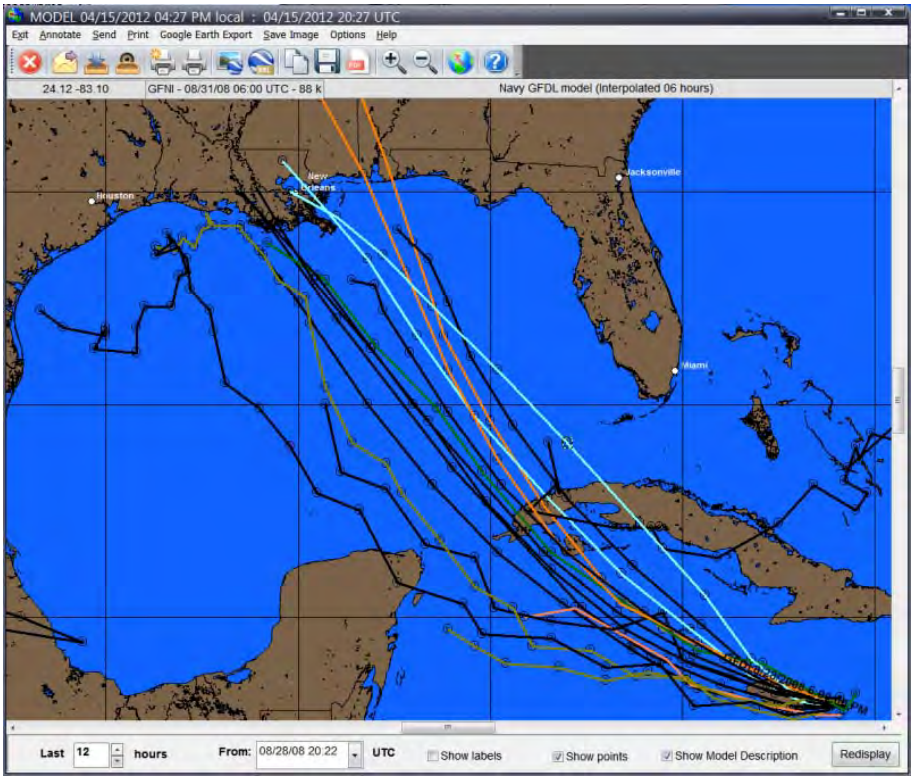
Save Image - The save image options here are the same as those described earlier.

Graph HDOB – These options are somewhat redundant with the options on the information panel for the HDOB reports. They include:
Clear Graph Selection – Clears the previously select start and end points for graphing.
Select HDOB observations – Prompts the user to select (with the mouse) the first and last observation points for graphing.
Set Date1 – Allows the user to select the first observation point.
Set Date2 – Allows the user to select the last observation point.
Temperature / Dew Point – Plots a temperature / dew point graph as shown on the prior page.
Surface Pressure – Plots a surface pressure graph as shown on the prior page.
Flight Level Wind Speed – Plots a flight level wind speed graph.
Surface Wind Speed – Plots a surface wind speed graph as shown on the prior page.

Help - Displays help information.

If you want more general information on hurricane reconnaissance, check www.hurricanehunters.com

Hurricane Model Plot


MODEL 04/15/2012 04:27 PM local : 04/15/2012 20:27 UTC
Exit Annotate Send Print Google Earth Export Save Image Options Help
24.12 -83.10
GFNI - 08/31/08 06:00 UTC - 88 k
Navy GFDL model (Interpolated 06 hours)
Houston
New Orleans
Jacksonville
Miami
Last 12 hours From: 08/28/08 20:22 UTC Show labels Show points Show Model Description Redisplay

When the hurricane model plot program is started, the user is presented with the above screen. At this point, the user can select the mapping area they are interested in via zoom in (rubber band area with mouse) or zoom out (right click) (see page 299 for more information) and then perform the program functions.

The model data is downloaded via the HURRTRAK ONLINE service. In addition to manually requesting the model data, by setting the HURRTRAK ONLINE Automation option, you can force the system to check for new data on a regular basis.

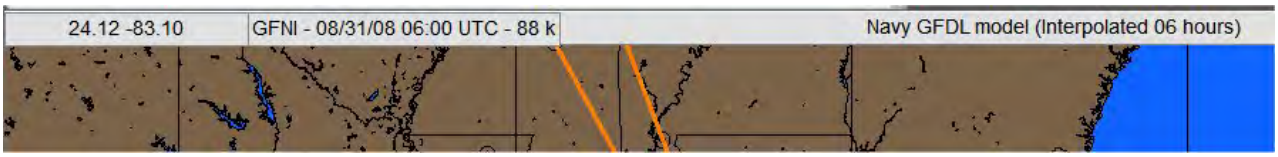
There are 2 program controls that determine which model forecast will plot.

- **The Date selection box which contains a date and time field.**
- **A duration (hours) field box which instructs the system how far to look back from the date selection.**

The example above is showing all model forecast that were issued within 8 hours of 8/28/2008 at 13:48 UTC.

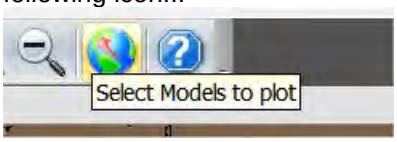
MOUSE Options:

When the user moves the mouse over a model verification point, the name of the model and description will be displayed in the status bar at the top of the map image.

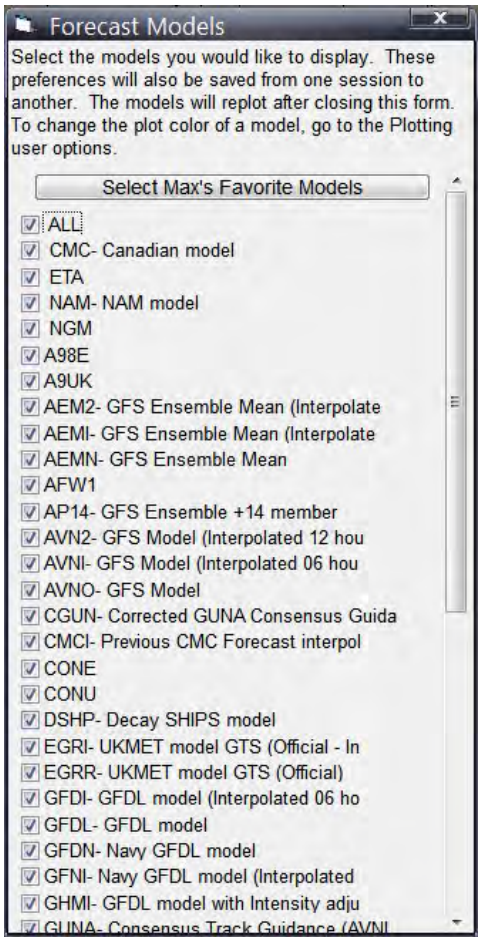


TOOLBAR Options:

An important Toolbar option allows the user to select the models they would like to Plot. By selecting the following icon...



The following model selection screen will be displayed....


Forecast Models
Select the models you would like to display. These preferences will also be saved from one session to another. The models will replot after closing this form. To change the plot color of a model, go to the Plotting user options.
Select Max's Favorite Models
ALL
CMC- Canadian model
ETA
NAM- NAM model
NGM
A98E
A9UK
AEM2- GFS Ensemble Mean (Interpolate
AEMI- GFS Ensemble Mean (Interpolate
AEMN- GFS Ensemble Mean
AFW1
AP14- GFS Ensemble +14 member
AVN2- GFS Model (Interpolated 12 hou
AVNI- GFS Model (Interpolated 06 hou
AVNO- GFS Model
CGUN- Corrected GUNA Consensus Guida
CMCI- Previous CMC Forecast interpol
CONE
CONU
DSHP- Decay SHIPS model
EGRI- UKMET model GTS (Official - In
EGRR- UKMET model GTS (Official)
GFDI- GFDL model (Interpolated 06 ho
GFDL- GFDL model
GFDN- Navy GFDL model
GFNI- Navy GFDL model (Interpolated
GHMI- GFDL model with Intensity adju
GUNA- Consensus Track Guidance (AVNI

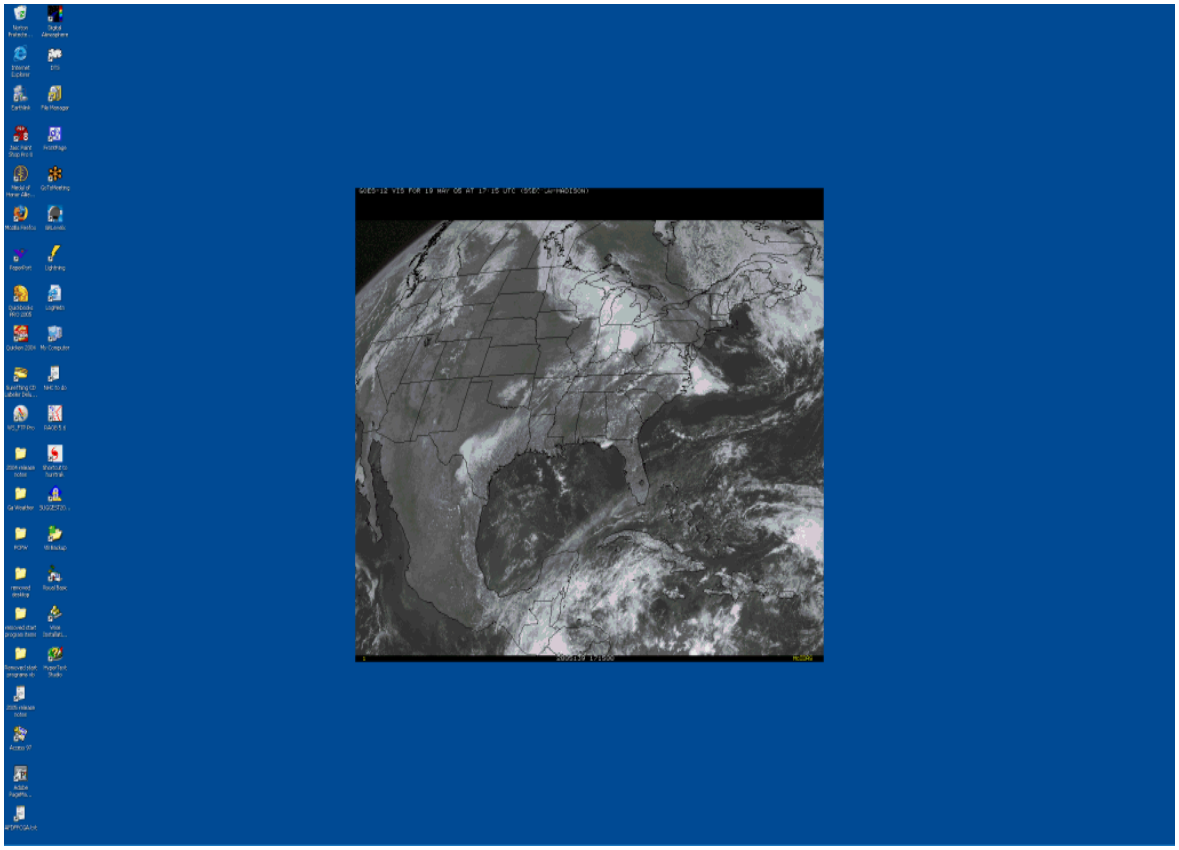
Simply select the models you would like to see plotted and uncheck the ones you do not want to see. An additional option of "Max's Favorite Models" will select only the hurricane forecast models that are on Max Mayfield's preferred list. This may vary from time to time as models change. The selected models will be preserved between ModelPlot sessions.

MENU OPTIONS:

While using the model plot program, the following options are available:

Exit - Closes this window.
Annotate - The annotate feature here is identical to the one described earlier.
Send - Sends the current image to an Email recipient.
Print - The print options here are the same as those described earlier, **except** that the fax print option is not available.
Google Earth Export – This option allows the user to export the current image or the currently displayed forecast model KML to Google Earth.
Save Image - The save image options here are the same as those described earlier.
Options - This option allows the user to change the width of the forecast models lines or select which models to plot.
Help - Displays help information.

Desktop Satellite



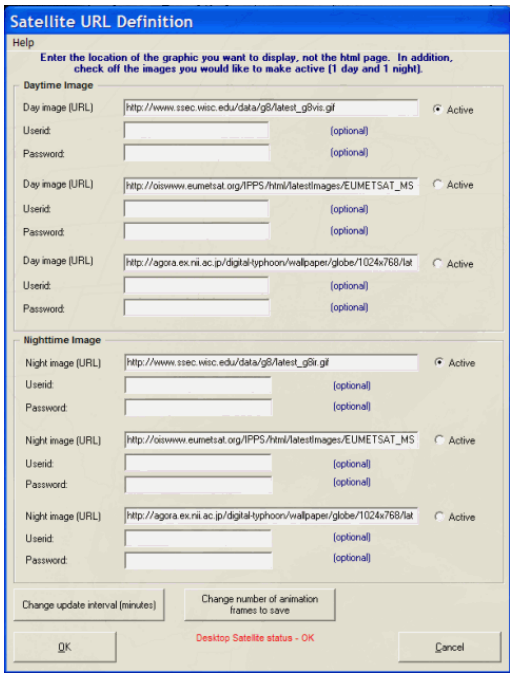
The desktop satellite program is a handy little program that runs in the system tray and will maintain a current satellite image on your Windows Desktop. It will automatically change from daytime to nighttime (IR) satellites and vice versa at sunrise and sunset.

To allow this to function you need…

1. **An always on internet connection**
2. **To select the "Start Desktop Satellite on Windows startup" checkbox on the General User options**

The options for this tray program (right click on cloud icon in tray) are:

Options – This option presents the user with the following window, allowing them to change the 6 (3 day, 3 night) default satellite images, as well as the update interval, number of frames to save for animation. Only one URL of each (day/night) can be selected. You can also select a local jpg, gif, bmp, png or tif image to display.



The userid and password fields can be used if your favorite satellite image is password protected.

Do not update desktop – This option prevent the program from updating the desktop... however the images will be included in the animation sequence. Some users may want to do this if they have a favorite image on their desktop or if they utilized a "themed" desktop.

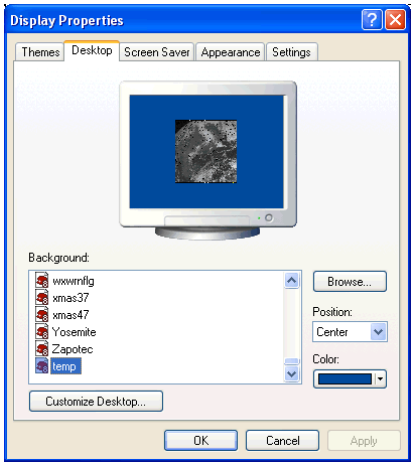
Force Update – This option will force the program to update the current satellite image, rather than waiting the typical 20 minutes.

Animate saved images – This option will animate the saved images on the desktop. When animating, all desktop icons are hidden to allow for a faster animation sequence.

Quit – Closes the tray options.

End Desktop Satellite – Closes the program.

Finally, we suggest you setup your windows display options to CENTER the image on your desktop, rather than stretch or tile. Windows XP example below.



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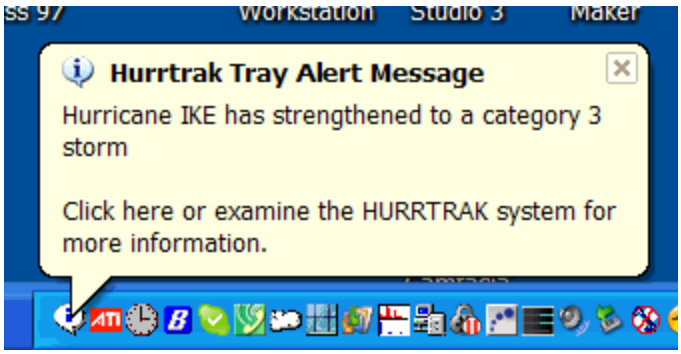
Tray Alert Messaging


Hurrtrak Tray Alert Message
Hurricane IKE has strengthened to a category 3 storm
Click here or examine the HURRTRAK system for more information.

We found that Hurrtrak users, busy at their workstations, desired a way to be alerted to new and changing conditions in the tropics. The "tray alert messaging" (TAM) system notifies our users, via pop-up tray messages, of several noteworthy conditions including: the formation of new storms, storm strengthening or weakening, the issuance of watches or warnings, updated storm data, issuance of the last advisory, new tropical weather outlooks or new tropical disturbance statements.

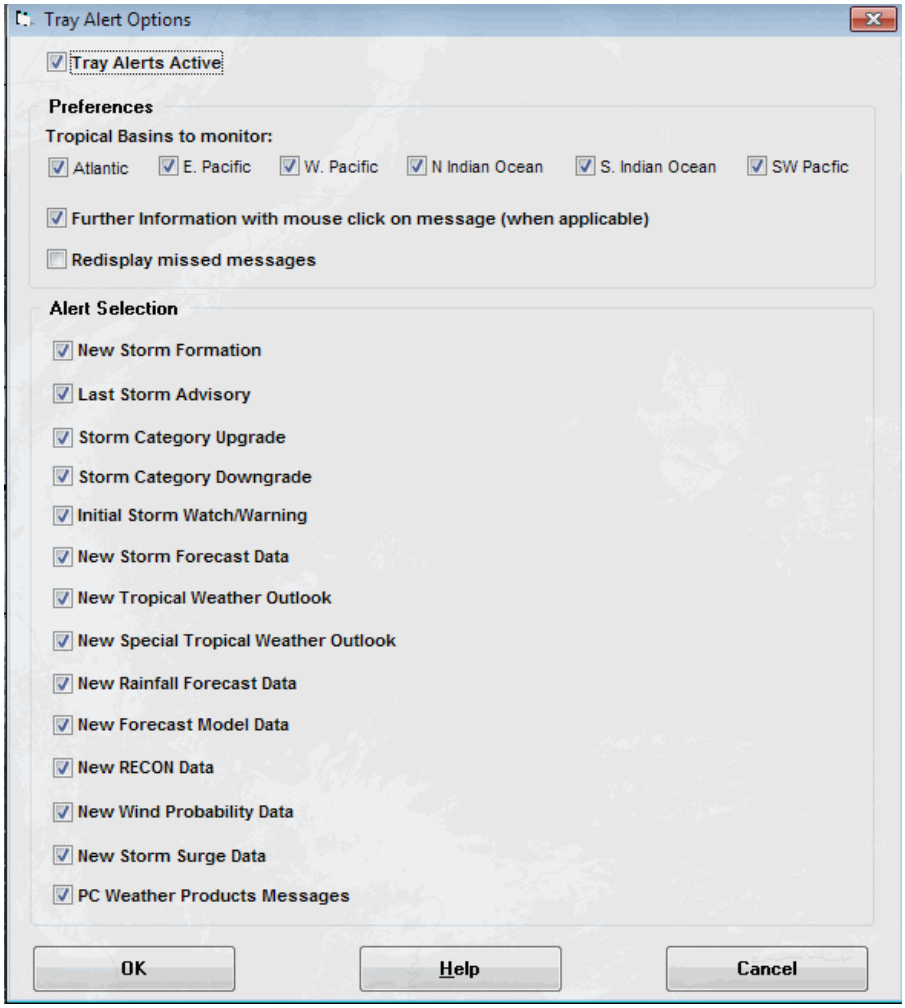
This module will initialize when Windows is started and depends on the Hurrtrak Online Timer program also running in the System Tray.

The options for this tray program (right click on the "I" bubble icon in tray) are:

Redisplay last message. If you miss a message it will redisplay the last message displayed by the system.

Display Tray Alert Log – This option displays, in a concise manner, all of the messages displayed since the last restart of your system along with the date/time they were displayed.

Options – This option presents the user with the following window, allowing them to change which conditions they should be alerted to and how to handle those conditions.



Selections on this window include:

Tray Alert Active – This option will activate or de-activate the Tray Alert Function.

Tropical Basins to monitor – For Global or Advanced users this option allows the user to see messages only for tropical areas they are interested in.

Further Information with mouse click on message – This option allows a "helper" program to open when the message is clicked upon via the mouse. For example, if a new tropical weather outlook message is displayed, the Tropical Weather Outlook will display when the message is clicked.

Redisplay missed messages – This option will redisplay the message every 5 minutes unless it has been "clicked" on. This assures you will not miss any messages since the Windows operating system will often hide tray messages when there is other activity on the PC system.

Alert Selection – In this section you specify which alert you would like to see displayed. Uncheck any you do not want to see. When there is an active reconnaissance flight, the New RECON Data option will result in many tray messages.

Exit – This option closes the program. No more messages will be displayed.

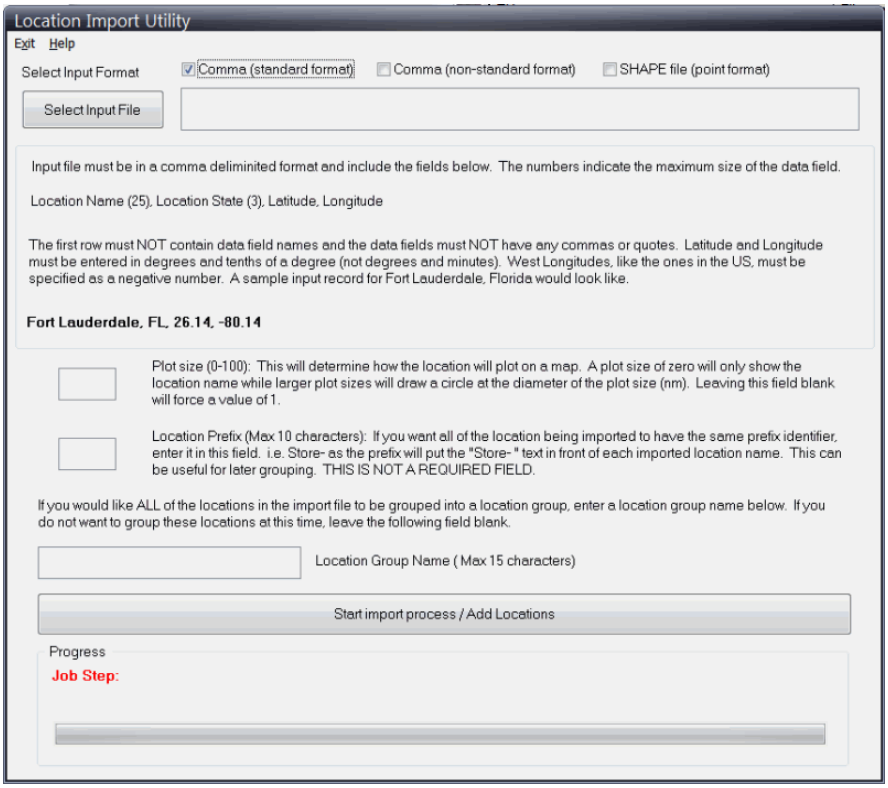
Location Import Utility

The Hurrtrak Advanced system includes a location / location group import utility. This program allows you to import your organization's locations, as well as the ability to automatically associate them to a location group.

The utility is accessible from the START PROGRAMS menu – Hurrtrak Advanced program group. Select "Run Location Import Utility". It is best if the main tracking program is not running at the time this utility is used.

When executed, the user is presented with a screen, whereby they must select the input import file, as well as the location group the imported locations will be grouped under, if any. There are 3 choices of input files.. Comma Delimited (standard format), Comma Delimited (non-standard format) or an ESRI Point type shape file.

If selecting a comma-delimited (standard format) input file, the following screen and field are presented:


Location Import Utility
Exit Help
Select Input Format
Comma (standard format)
Comma (non-standard format)
SHAPE file (point format)
Select Input File
Input file must be in a comma deliminited format and include the fields below. The numbers indicate the maximum size of the data field.
Location Name (25), Location State (3), Latitude, Longitude
The first row must NOT contain data field names and the data fields must NOT have any commas or quotes. Latitude and Longitude must be entered in degrees and tenths of a degree (not degrees and minutes). West Longitudes, like the ones in the US, must be specified as a negative number. A sample input record for Fort Lauderdale, Florida would look like.
Fort Lauderdale, FL, 26.14, -80.14
Plot size (0-100): This will determine how the location will plot on a map. A plot size of zero will only show the location name while larger plot sizes will draw a circle at the diameter of the plot size (nm). Leaving this field blank will force a value of 1.
Location Prefix (Max 10 characters): If you want all of the location being imported to have the same prefix identifier, enter it in this field. i.e. Store- as the prefix will put the "Store- " text in front of each imported location name. This can be useful for later grouping. THIS IS NOT A REQUIRED FIELD.
If you would like ALL of the locations in the import file to be grouped into a location group, enter a location group name below. If you do not want to group these locations at this time, leave the following field blank.
Location Group Name (Max 15 characters)
Start import process / Add Locations
Progress
Job Step:

The input file must be comma-delimited and is required to be in the following format:

Location Name (25), Location State (3), Latitude, Longitude.

The first row must NOT contain data field names and the data fields must NOT have any commas or quotes. Latitude and Longitude must be entered in degrees and tenths of a degree (not degrees and minutes). West longitudes, like the ones in the US, must be specified as a negative number. A sample input record for Fort Lauderdale, Florida with a plot size of 5 miles would look like the following:

Fort Lauderdale, FL, 26.14, -80.14

Plot Size: If you want to set the plot size to a certain value for all locations, specify it in the plot size field. It will determine how the location will appear on a map. A plot size of zero will only show the location name, while larger plot sizes will draw a circle at the diameter of the plot size (nm). Leaving this field blank will force a value of 1.

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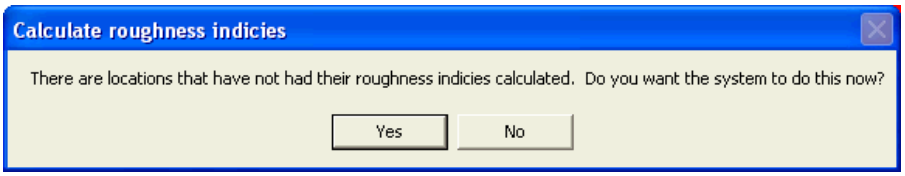
Location Prefix: If you want all of the locations being imported to have the same prefix identifier, enter it in this field. For example, the prefix "Store-" will put this in front of the name of each imported location name. i.e. a location name 1234 will be loaded as "Store-1234". This is not a required field.

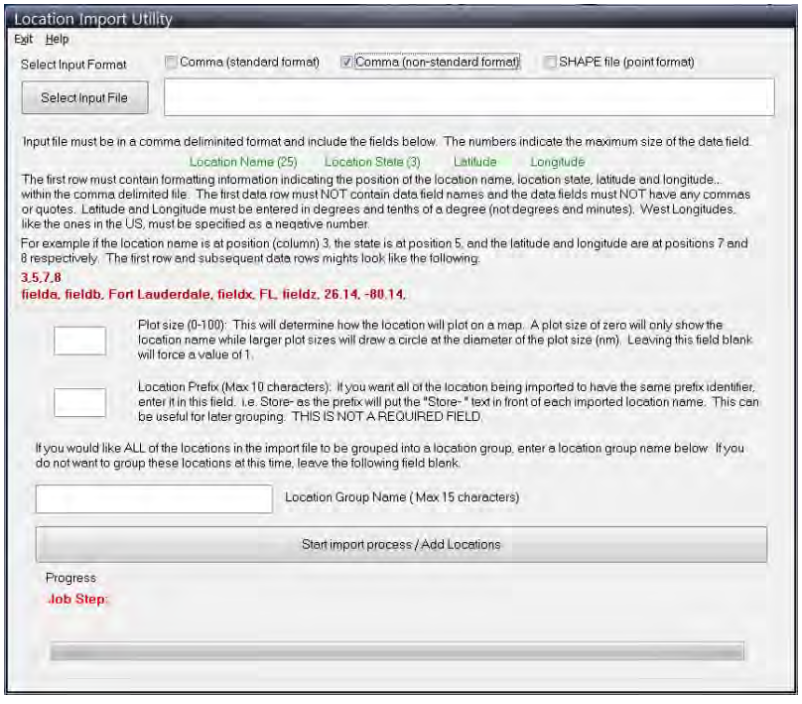
If you would like ALL of the locations in the import file to be grouped into a location group, enter a location group name in that field. If you do not want to group these locations at this time, leave the location group name field blank.

When the import is complete, the following verification message is displayed:

When the import is complete, the system will suggest that the locations roughness indexes be calculated. You do not have to do this now. However, the next time you go into System Maintenance – Location Maintenance, the system may ask if you want to calculate roughness indices for these locations. Reply Yes to do so. It may take a few minutes to complete.


Calculate roughness indicies
There are locations that have not had their roughness indicies calculated. Do you want the system to do this now?
Yes
No

If selecting a comma delimited (non-standard format), the following screen is presented.


Location Import Utility
Exit Help
Select Input Format
Comma (standard format)
Comma (non-standard format)
SHAPE file (point format)
Select Input File
Input file must be in a comma deliminted format and include the fields below. The numbers indicate the maximum size of the data field.
Location Name (25) Location State (3) Latitude Longitude
The first row must contain formatting information indicating the position of the location name, location state, latitude and longitude.. within the comma delimited file. The first data row must NOT contain data field names and the data fields must NOT have any commas or quotes. Latitude and Longitude must be entered in degrees and tenths of a degree (not degrees and minutes). West Longitudes, like the ones in the US, must be specified as a negative number.
For example if the location name is at position (column) 3, the state is at position 5, and the latitude and longitude are at positions 7 and 8 respectively. The first row and subsequent data rows mights look like the following.
3,5,7,8
fielda, fieldb, Fort Lauderdale, fieldx, FL, fieldz, 26.14, -80.14,
Plot size (0-100): This will determine how the location will plot on a map. A plot size of zero will only show the location name while larger plot sizes will draw a circle at the diameter of the plot size (nm). Leaving this field blank will force a value of 1.
Location Prefix (Max 10 characters): If you want all of the location being imported to have the same prefix identifier, enter it in this field. i.e. Store- as the prefix will put the "Store- " text in front of each imported location name. This can be useful for later grouping. THIS IS NOT A REQUIRED FIELD.
If you would like ALL of the locations in the import file to be grouped into a location group, enter a location group name below. If you do not want to group these locations at this time, leave the following field blank.
Location Group Name (Max 15 characters)
Start import process / Add Locations
Progress
Job Step:

The input file must be in a comma delimited format however the key fields can be at any position in the input file. The first row must contain the information on where to find the location name, state, latitude and longitude. The subsequent rows must contain the data. For example, if the

location name is at position 3, the state at position 5 and latitude and longitude are at positions 7 and 8... the first row would be coded as...

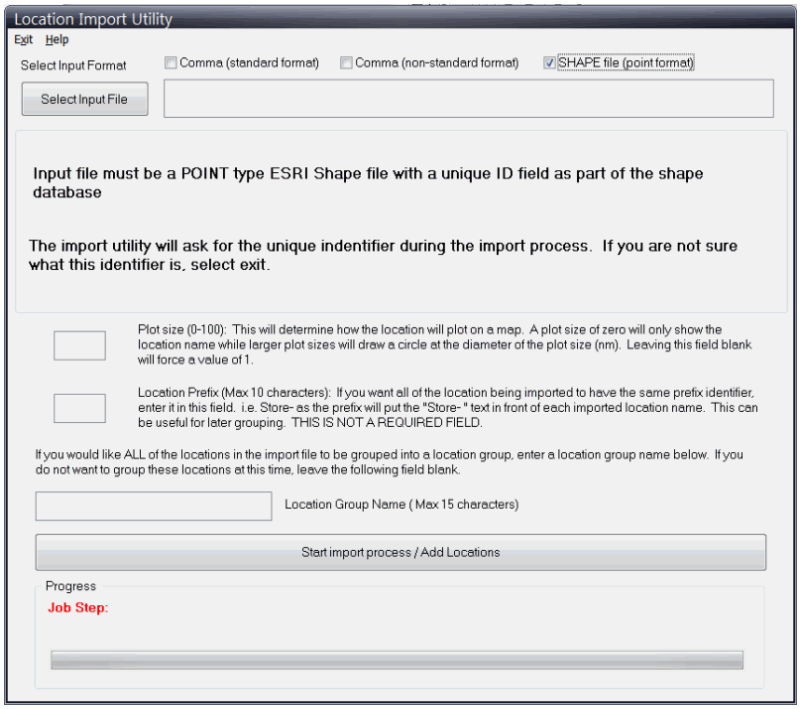
3,5,7,8

with the following rows looking something like,

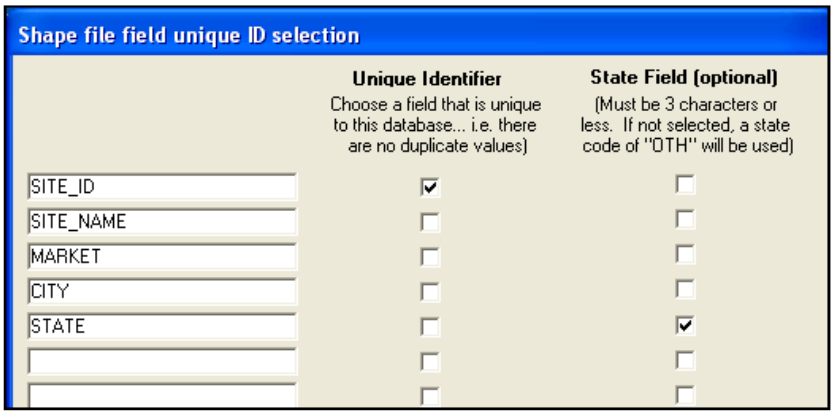
fielda data, fieldb data, Fort Lauderdale, fieldx data, FL, 26.14, -80.14 (field a, b and x data will be ignored).

The rest of the import procedure is the same as described above.

If the input data file is a point type Shape file, the following screen is presented:

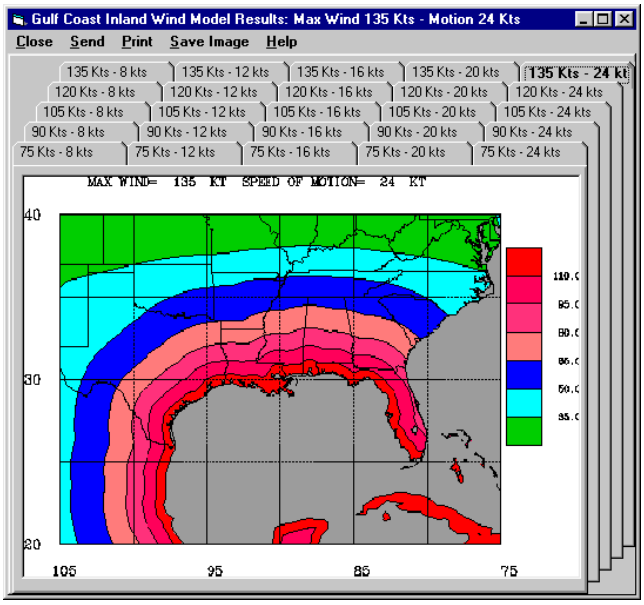

Location Import Utility
Exit Help
Select Input Format
Comma (standard format)
Comma (non-standard format)
SHAPE file (point format)
Select Input File
Input file must be a POINT type ESRI Shape file with a unique ID field as part of the shape database
The import utility will ask for the unique indentifier during the import process. If you are not sure what this identifier is, select exit.
Plot size (0-100): This will determine how the location will plot on a map. A plot size of zero will only show the location name while larger plot sizes will draw a circle at the diameter of the plot size (nm). Leaving this field blank will force a value of 1.
Location Prefix (Max 10 characters): If you want all of the location being imported to have the same prefix identifier, enter it in this field. i.e. Store- as the prefix will put the "Store- " text in front of each imported location name. This can be useful for later grouping. THIS IS NOT A REQUIRED FIELD.
If you would like ALL of the locations in the import file to be grouped into a location group, enter a location group name below. If you do not want to group these locations at this time, leave the following field blank.
Location Group Name (Max 15 characters)
Start import process / Add Locations
Progress
Job Step:

The data fields are identical to the comma-delimited input file method. However, an additional selection screen is presented during the import. It displays the data fields within the point shape file.


Shape file field unique ID selection
Unique Identifier
Choose a field that is unique to this database... i.e. there are no duplicate values)
State Field (optional)
(Must be 3 characters or less. If not selected, a state code of "OTH" will be used)
SITE_ID
SITE_NAME
MARKET
CITY
STATE

Here, you must identify the unique ID field and, optionally, the State data field. When identified, select “continue” and the locations will be imported, as described with the comma-delimited method above.

Inland Wind Model


Gulf Coast Inland Wind Model Results: Max Wind 135 Kts - Motion 24 Kts
Close Send Print Save Image Help
135 Kts - 8 kts
135 Kts - 12 kts
135 Kts - 16 kts
135 Kts - 20 kts
135 Kts - 24 kts
120 Kts - 8 kts
120 Kts - 12 kts
120 Kts - 16 kts
120 Kts - 20 kts
120 Kts - 24 kts
105 Kts - 8 kts
105 Kts - 12 kts
105 Kts - 16 kts
105 Kts - 20 kts
105 Kts - 24 kts
90 Kts - 8 kts
90 Kts - 12 kts
90 Kts - 16 kts
90 Kts - 20 kts
90 Kts - 24 kts
75 Kts - 8 kts
75 Kts - 12 kts
75 Kts - 16 kts
75 Kts - 20 kts
75 Kts - 24 kts
MAX WIND= 135 KT SPEED OF MOTION= 24 KT
40
30
20
105
95
85
75

The **inland wind model** was developed by Mark DeMaria (NOAA/NWS/TPC) and John Kaplan (NOAA/AOML/HRD). The model applies a simple two-parameter decay equation to the hurricane wind field at landfall to estimate the maximum sustained surface wind as a storm moves inland. This model can be used for operational forecasting of the maximum winds of landfalling tropical cyclones. It can also be used to estimate the maximum inland penetration of hurricane force winds (or any wind threshold) for a given initial storm intensity and forward storm motion. For further explanation refer to:

Kaplan, J., DeMaria, M., 1995: A Simple Empirical Model for Predicting the Decay of Tropical Cyclone Winds After Landfall. *J. App. Meteor.*, **34**, No. 11, 2499-2512.

The graphics included in the HURRTRAK system will allow you to display examples of the **M**aximum **E**nvelope **O**f **W**inds **(MEOW)**. Three sets of graphics are shown, one for each of the regions: Gulf coast, East Coast, and Northeast Coast. Click on the region desired and that set of graphics will be displayed.

While viewing the graphics, there are several menu options available:

Close - Closes this window.

Send - Sends the current image to an Email recipient.

Print - The print options here are the same as those described earlier, **except** that the fax print option is not available.

Save Image - The save image options here are the same as those described earlier.

Help - Displays help information.

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Appendixes

APPENDIX A: Initial System Setup Items

After installing the system, there are several system/user parameters that should be setup first. They include the following:

1. Setting up a new storm database. The system comes with a PAST database and the databases from 1851 onward. Unless already done, the first thing you will want to do is create a database for the current year. We recommend calling it the year.. i.e. 2011 or 2012, etc... To create a new storm database, go to FILE-Database from the Hurrtrak Menu OR go to System Setup Options and follow the on-screen directions. See page 179.

2. Define your "Base" Location(s). If you have an interest in a single location, you may define it to the system in the General options. After doing so, the main application's Risk/Impact Tab will show storm information about your location. See page 68. If you have more than one "base" location, add them to the location group called "Base Locations" via system setup maintenance.

3. Define your system's Email parameters. In order to use the Email capabilities of the system, you will need to define your preferences and settings in Email General options, as shown on page 63.

4. Define your personal Email Address book. To send E-mail via HURRTRAK's native SMTP capability, you must first define all of the possible recipients in the Address book option on page 61. If you plan on using the MS Outlook interface, you will need to select the address books you would like Hurrtrak to use.

5. Define your HURRTRAK ONLINE parameters. To receive HURRTRAK Online information, you must define several parameters.

- Define your Userid and Password via HURRTRAK Online Options shown on page 77. Be certain that you enter them EXACTLY as shown on your instructions!

- If using a proxy server, set up http proxy parameters as directed by your system network administrator using Hurrtrak Online Options.

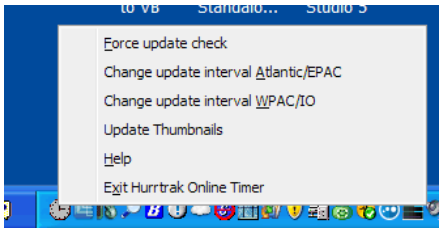
- Select "Start Hurrtrak Online Timer as Windows Startup" in the Hurrtrak Online Polling options.

There are many additional system and user options that are available within the system. This list just represents the ones that typically are setup first.

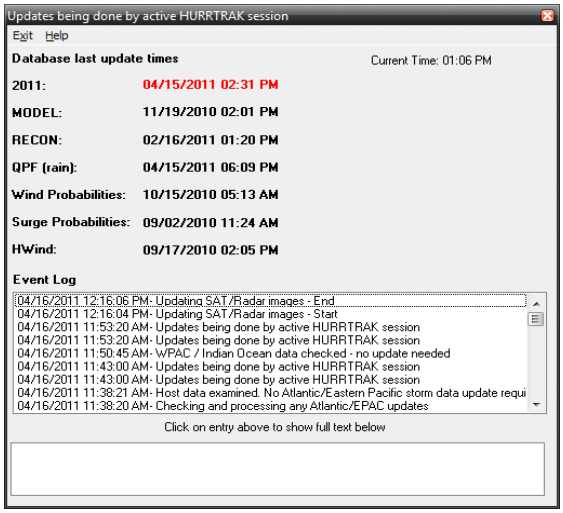
APPENDIX A2: HURRTRAK Online Timer

The Hurrtrak Online Timer module is a crucial part of the Hurrtrak system because it allows all of the Hurrtrak components to run effectively... using the latest data.

It runs in the system tray as a "clock" icon and it's only function is to keep the Hurrtrak databases up to date with the latest storm, recon, forecast model, rain, wind probability, surge probability information. It is activated via an option within the Hurrtrak Online user preferences ("Start Hurrtrak Online Timer at Windows Startup"). It appears in the system tray as shown below and has several options that appear when the icon is "right clicked" by the mouse.



When the icon is double clicked (left mouse button) the following window will appear detailing the latest update times and events.


Updates being done by active HURRTRAK session
Exit Help
Database last update times
Current Time: 01:06 PM
2011: 04/15/2011 02:31 PM
MODEL: 11/19/2010 02:01 PM
RECON: 02/16/2011 01:20 PM
QPF (rain): 04/15/2011 06:09 PM
Wind Probabilities: 10/15/2010 05:13 AM
Surge Probabilities: 09/02/2010 11:24 AM
HWind: 09/17/2010 02:05 PM
Event Log
04/16/2011 12:16:06 PM- Updating SAT/Radar images - End
04/16/2011 12:16:04 PM- Updating SAT/Radar images - Start
04/16/2011 11:53:20 AM- Updates being done by active HURRTRAK session
04/16/2011 11:53:20 AM- Updates being done by active HURRTRAK session
04/16/2011 11:50:45 AM- WPAC / Indian Ocean data checked - no update needed
04/16/2011 11:43:00 AM- Updates being done by active HURRTRAK session
04/16/2011 11:43:00 AM- Updates being done by active HURRTRAK session
04/16/2011 11:38:21 AM- Host data examined. No Atlantic/Eastern Pacific storm data update requi
04/16/2011 11:38:20 AM- Checking and processing any Atlantic/EPAC updates
Click on entry above to show full text below

The options for this tray program (right click on the "clock" bubble icon in tray) are:

Force update check - This forces the system to check for data updates immediately instead of waiting for the next polling time.
Change update interval Atlantic/EPAC – This option temporarily changes the default polling interval for Atlantic and Eastern Pacific data. The EPAC data is only available for Global/Advanced users. The default polling interval is set in the Hurrtrak Online user preferences.
Change update interval WPAC/IO – This option temporarily changes the default polling interval for the Western Pacific and Indian Ocean. This is only available for Global/Advanced users. The default polling interval is set in the Hurrtrak Online user preferences.
Update Thumbnails - This option allows the user to force the system to download/update all of the satellite and radar thumbnails. Normally they are updated at regular intervals defined in the system setup options.
Help - Displays this help
Exit Hurrtrak Online Timer - Closes this program

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APPENDIX B: Decision Support Capabilities

The HURRTRAK EM/Pro and RM/Pro systems have several elements of decision support. While the storm graphics, summary and detail impact reports, etc. all provide information which assist the user in making key decisions, several new functions have been added that directly tie decision (action) points to the storm forecast data.

In this topic, we will cover the key decision support functions implemented within the system. Please review each topic in sequence.

ACTION POINTS
DECISION ARCS
DECISION ARC USER OPTIONS
EFFECT OF ACTION POINTS ON DETAIL LOCATION REPORTS
DIRECT TO POINT

ACTION POINTS

Action Points are the key elements to the added decision support in the HURRTRAK system. Action points are "points" in time that relate to key decisions for a particular location. Examples of decisions include the start of storm phases like:

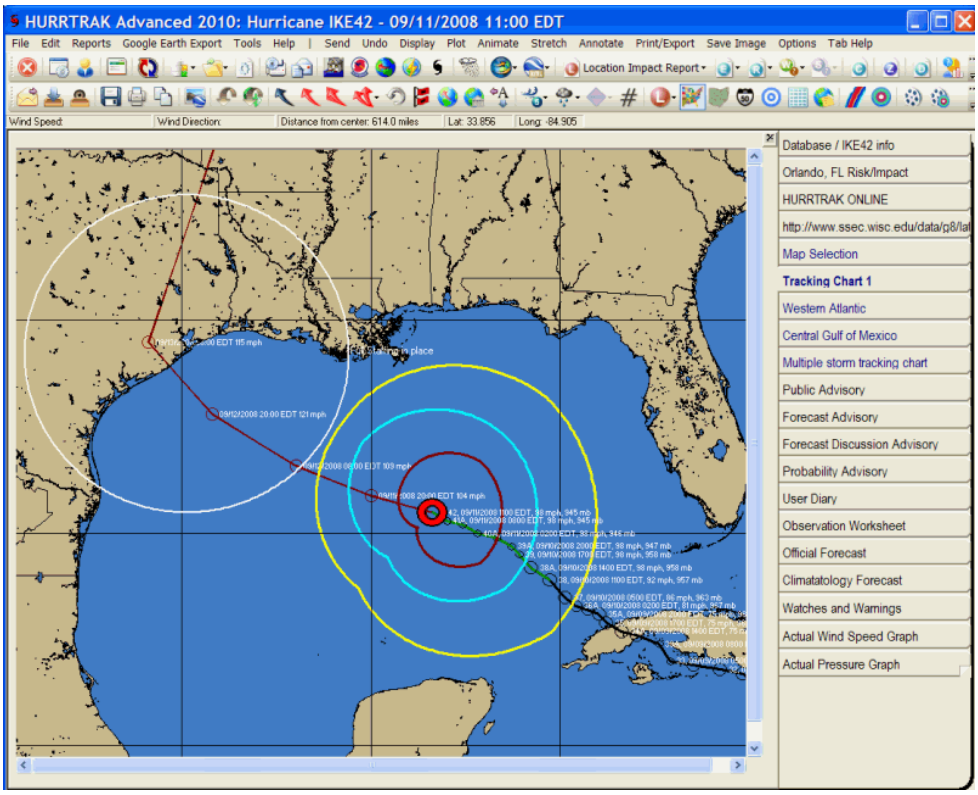
- Awareness
- Stand-By
- Decision
- Preparation
- Evacuation
- Storm Event
- Stand Down

These action points are "triggered" by the arrival of either 34, 50 or 64 knot winds and have lead times that may vary by category of storm. For example, for Escambia County, the Evacuation action may be triggered 24 hours prior to projected arrival of 34 knots winds for a category 3-5 hurricane and 16 hours prior to projected arrival of 34 knot winds for a category 1 or 2 storm.

Multiple action points can be setup for any set of locations or counties. In order to establish action Point(s) for a location, follow these steps:

1. Go to System Setup and select location or county maintenance.
2. Type in all or part of the location/county name until it shows up in the list.
3. With that location highlighted, select Define action points.
4. Select Add Action point and fill in the action point name and description
5. Fill in the rest of the information on this action point in the table.
6. Add another action point, if desired.

DECISION ARCS


HURRTRAK Advanced 2010: Hurricane IKE42 - 09/11/2008 11:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Undo Display Plot Animate Stretch Annotate Print/Export Save Image Options Tab Help
Location Impact Report
Wind Speed: Wind Direction: Distance from center: 614.0 miles Lat: 33.856 Long: -84.905
Database / IKE42 info
Orlando, FL Risk/Impact
HURRTRAK ONLINE
http://www.ssec.wisc.edu/data/g8/lat
Map Selection
Tracking Chart 1
Western Atlantic
Central Gulf of Mexico
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
User Diary
Observation Worksheet
Official Forecast
Climatatology Forecast
Watches and Warnings
Actual Wind Speed Graph
Actual Pressure Graph

As shown above, a decision arc is a tool that shows, graphically, the point when certain decisions are made or actions initiated. For example, if a storm is moving at 10 MPH towards a location and an action point is triggered by the arrival of 34 knot winds in 16 hours, then a "circle" is drawn around that location at a distance of 160 miles. When, graphically, the area of 34 knot winds "intersects" with the arc, that action point checkpoint has arrived.

On a static tracking chart, the user is presented with the option of either accepting the storm's forecast speed of motion and intensity, or of overriding it.

If selected in animation options, the decision arc will be shown during an animation sequence.

DECISION ARC OPTIONS

In order to utilize the location action point information that was entered, the user must set up several options within the system.

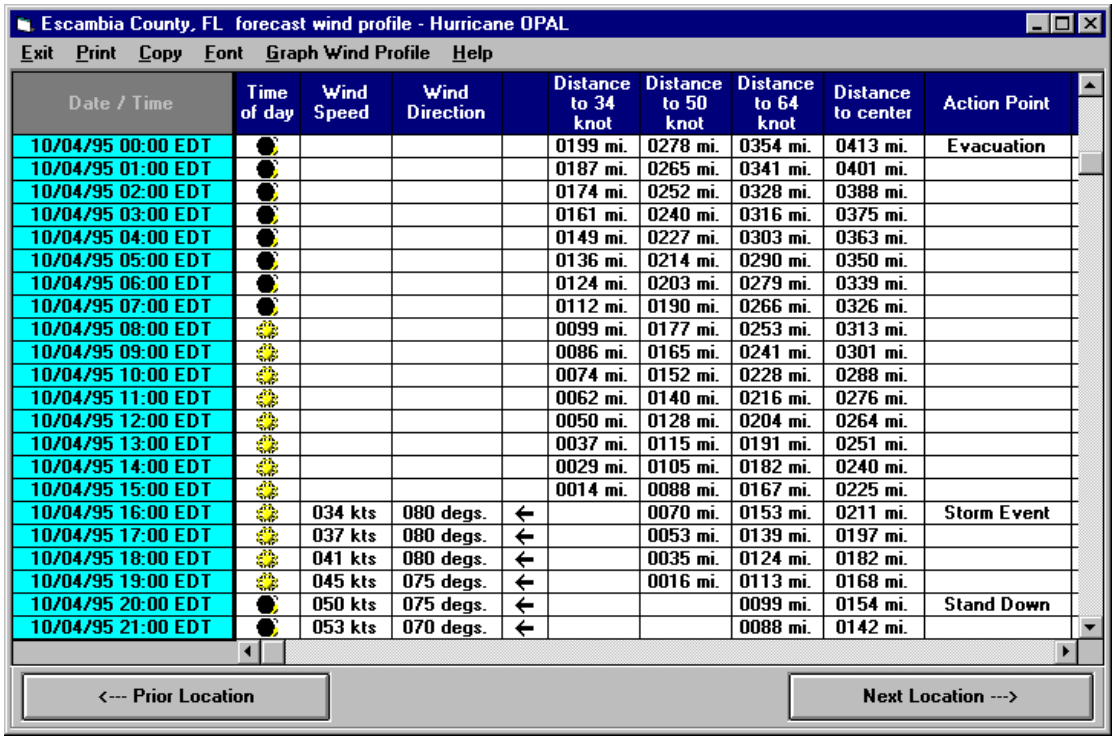
1. First, the user must select the location they would like to use for the plot decision arc function. Within the plotting options, as shown on page 84, select the desired location from the list. Remember, the only locations that will appear in the list are ones that have had action points defined, with the decision arc column selected.

2. Next, the user can control the decision arc line color and line width within plotting options.

3. Within Animation Options, as shown on page 57 the user can specify if they would like a decision arc to be visible during animation. They must also specify which action point they would like to show the decision arc for. Finally, in calculating the size of the decision arc, the user may override the official forecast motion and intensity (category) which is normally assumed during animation. If override is checked, the user can then enter a different storm motion speed and intensity (category).

EFFECT OF ACTION POINTS ON DETAIL LOCATION REPORTS

When creating a detailed location or county forecast report, all of that location's action points are examined to see if they are triggered by the forecast wind conditions. If they are, then the appropriate action point will appear in the action point column at the defined time. Here is an example of a forecast location report for Escambia County with the approach of Hurricane OPAL.



Date / Time	Time of day	Wind Speed	Wind Direction		Distance to 34 knot	Distance to 50 knot	Distance to 64 knot	Distance to center	Action Point
10/04/95 00:00 EDT					0199 mi.	0278 mi.	0354 mi.	0413 mi.	Evacuation
10/04/95 01:00 EDT					0187 mi.	0265 mi.	0341 mi.	0401 mi.	
10/04/95 02:00 EDT					0174 mi.	0252 mi.	0328 mi.	0388 mi.	
10/04/95 03:00 EDT					0161 mi.	0240 mi.	0316 mi.	0375 mi.	
10/04/95 04:00 EDT					0149 mi.	0227 mi.	0303 mi.	0363 mi.	
10/04/95 05:00 EDT					0136 mi.	0214 mi.	0290 mi.	0350 mi.	
10/04/95 06:00 EDT					0124 mi.	0203 mi.	0279 mi.	0339 mi.	
10/04/95 07:00 EDT					0112 mi.	0190 mi.	0266 mi.	0326 mi.	
10/04/95 08:00 EDT					0099 mi.	0177 mi.	0253 mi.	0313 mi.	
10/04/95 09:00 EDT					0086 mi.	0165 mi.	0241 mi.	0301 mi.	
10/04/95 10:00 EDT					0074 mi.	0152 mi.	0228 mi.	0288 mi.	
10/04/95 11:00 EDT					0062 mi.	0140 mi.	0216 mi.	0276 mi.	
10/04/95 12:00 EDT					0050 mi.	0128 mi.	0204 mi.	0264 mi.	
10/04/95 13:00 EDT					0037 mi.	0115 mi.	0191 mi.	0251 mi.	
10/04/95 14:00 EDT					0029 mi.	0105 mi.	0182 mi.	0240 mi.	
10/04/95 15:00 EDT					0014 mi.	0088 mi.	0167 mi.	0225 mi.	
10/04/95 16:00 EDT		034 kts	080 degs.	←		0070 mi.	0153 mi.	0211 mi.	Storm Event
10/04/95 17:00 EDT		037 kts	080 degs.	←		0053 mi.	0139 mi.	0197 mi.	
10/04/95 18:00 EDT		041 kts	080 degs.	←		0035 mi.	0124 mi.	0182 mi.	
10/04/95 19:00 EDT		045 kts	075 degs.	←		0016 mi.	0113 mi.	0168 mi.	
10/04/95 20:00 EDT		050 kts	075 degs.	←			0099 mi.	0154 mi.	Stand Down
10/04/95 21:00 EDT		053 kts	070 degs.	←			0088 mi.	0142 mi.	

In this section of the report, only the Evacuation, Storm Event and Stand Down Action Points appear.

What If Capabilities

Unrelated to action points, "what if" is a powerful "worse case scenario" tool that allows the user to change the projected path of a storm directly to a specified location. All functions, reports, etc., except for the strike probabilities, will then use this new path in its presentation and calculations. In addition, the main menu screen background turns black indicating to the user that they are in "what if" mode.

When selected, the user is presented with 3 intensity and storm motion options.

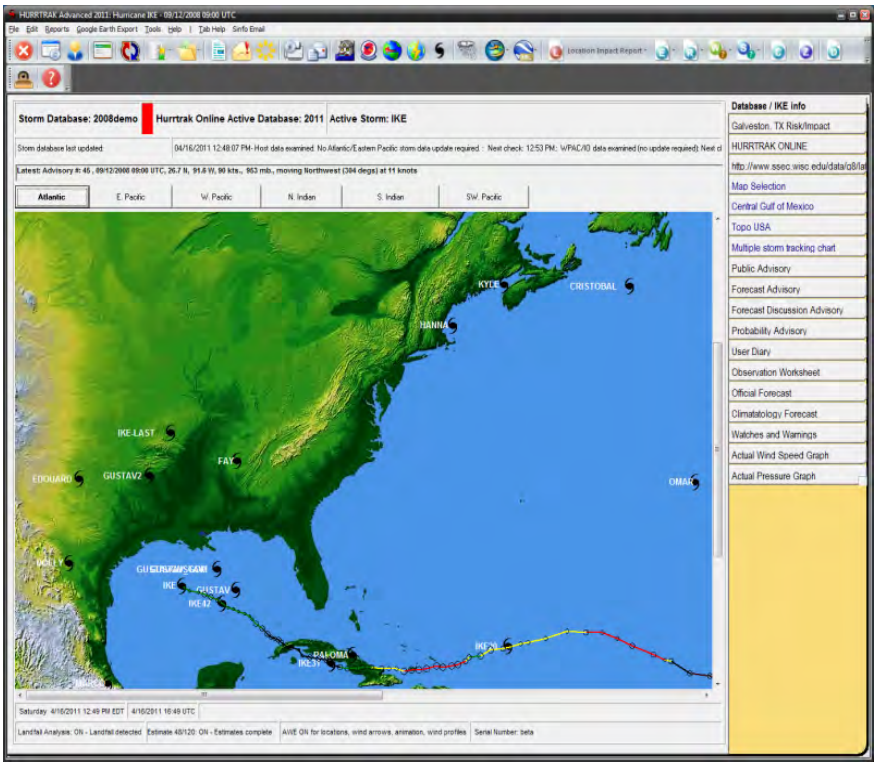
1. Maintain the storm's current intensity throughout the entire forecast period.
2. Assume the NHC forecast through the entire forecast period.
3. Override the NHC forecast. If this is selected, the user is presented with a screen that allows the entry of maximum wind speed, 34, 50 & 64 knot wind field, and speed of storm through the forecast period.

See "What if" Options on page 37 for more information.

APPENDIX C: Status Bars / General Information

There are several status "areas" throughout the system which provide either general or cursor positional type information. They include:

Main Menu Status Bars and General Tab Information



The main menu status bars and information include:

Storm Database Name – This status bar indicates the open storm database. Operational database updates are applied to the Hurrtrak Online Active Database... not this one (unless they match).

Hurrtrak Online Active Database - This status bar indicates the Active Hurrtrak Online Database. All current/operational database updates are applied to this database, not necessarily the open database. Under operational conditions, this database should match the default open database. A **RED** bar is displayed next to the storm name when the default and Hurrtrak Online databases do not match.

Active Storm Name. – The name of the currently loaded storm.

Date the database was last updated.

Date/Time the Internet host data was last examined, along with the status.

Latest Advisory of the active storm, as well as its location, movement and intensity, in addition to its relative position to the user's "base" location.

Map image – Through the use of icons, this image shows all of the storms in the current database. Older storms will be indicated with a black icon, while recent storms will be indicated with a red

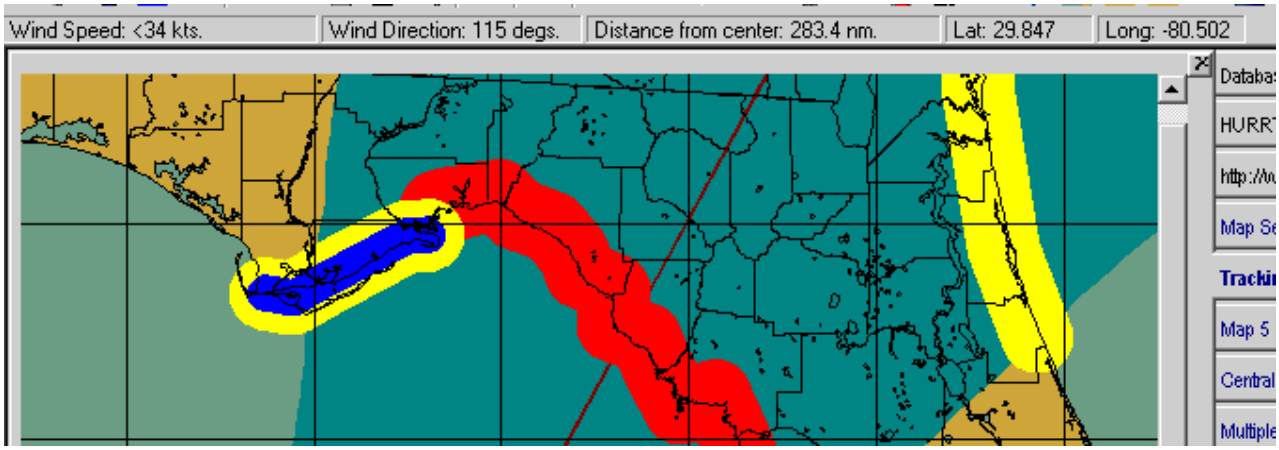
icon. Double Clicking on an icon will load that storm and make it current. In addition, the track of the current, loaded, storm is shown.

Current Date/Time and tide information (if base location has been associated to a tide station).

Software's Serial Number.

"Special" conditions, such as the system using post storm analysis, forecast estimation, landfall analysis, Advanced Wind Estimation, "What if " analysis, etc.

Tracking Chart Status Bars



The tracking chart status bar information includes mouse positional information:

Wind Speed

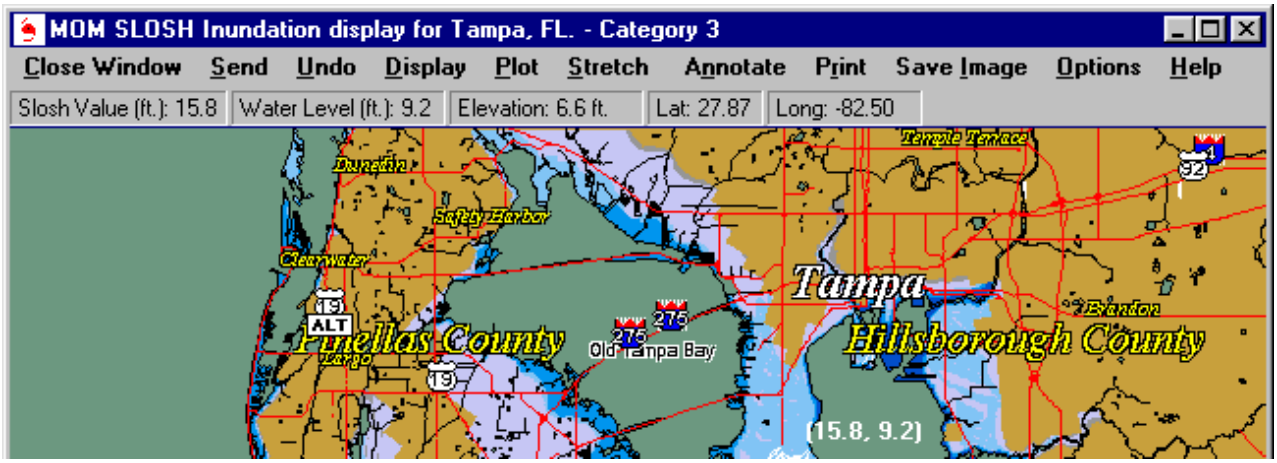
Wind Direction

Distance from Center of Storm

Latitude

Longitude

SLOSH Inundation Analysis Status Bars.



The SLOSH/Inundation chart status bar information includes mouse positional information of:

"Raw" SLOSH value

Calculated Inundation (water) level

Elevation

Latitude

Longitude

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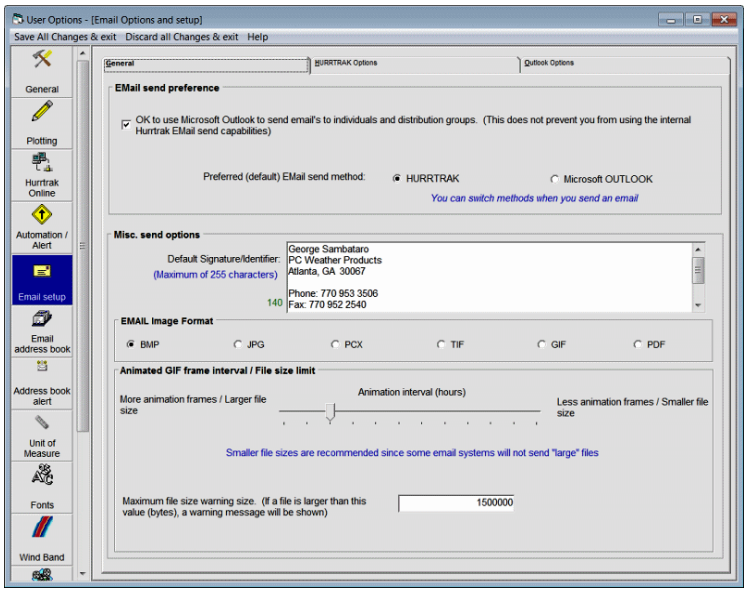
APPENDIX D: Email setup and capabilities

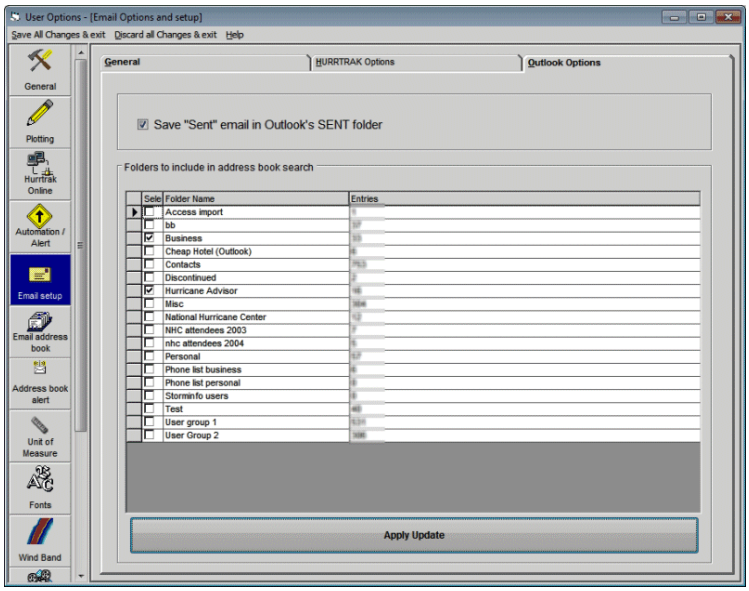
If you use Microsoft Outlook as your primary e-mail system, then do the following:

1. Make sure your Email Contact folders in Outlook are marked as "Show this folder as an Email Addressbook". This is a setting in the properties of each contact folder.

2. Select MS Outlook as your preferred method of sending e-mail via user preferences Email General Options.

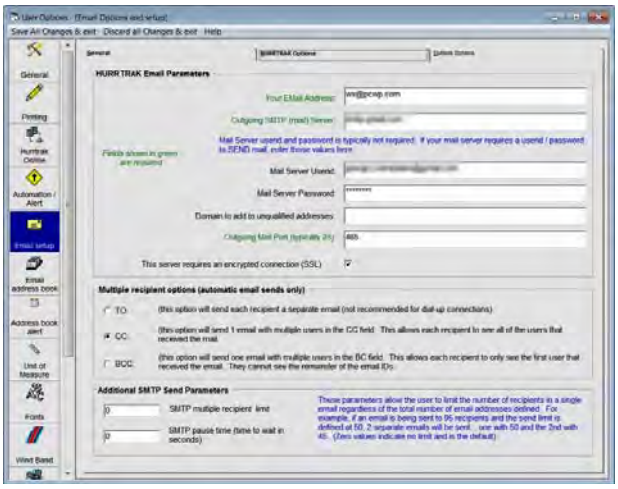

User Options - [Email Options and setup]
Save All Changes & exit
Discard all Changes & exit
Help
General
HURRTRAK Options
Outlook Options
EMail send preference
OK to use Microsoft Outlook to send email's to individuals and distribution groups. (This does not prevent you from using the internal Hurrtrak EMail send capabilities)
Preferred (default) EMail send method:
HURRTRAK
Microsoft OUTLOOK
You can switch methods when you send an email
Misc. send options
Default Signature/Identifier:
(Maximum of 255 characters)
George Sambataro
PC Weather Products
Atlanta, GA 30067
Phone: 770 953 3506
Fax: 770 952 2540
EMAIL Image Format
BMP
JPG
PCX
TIF
GIF
PDF
Animated GIF frame interval / File size limit
More animation frames / Larger file size
Animation interval (hours)
Less animation frames / Smaller file size
Smaller file sizes are recommended since some email systems will not send "large" files
Maximum file size warning size. (If a file is larger than this value (bytes), a warning message will be shown)
1500000
Plotting
Hurrtrak Online
Automation / Alert
Email setup
Email address book
Address book alert
Unit of Measure
Fonts
Wind Band

2. Define the address books you would like HURRTRAK to "see" via user preferences Email General Option Outlook folders. Be sure to not select very large folders (>5000), as this will greatly impact the systems performance when sending email.

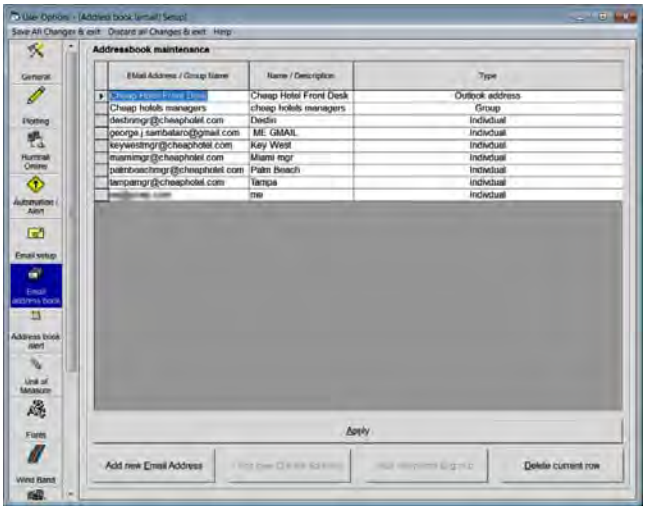


If you would like to use the Native Hurrtrak Email capabilities, then there are just a few steps to complete:

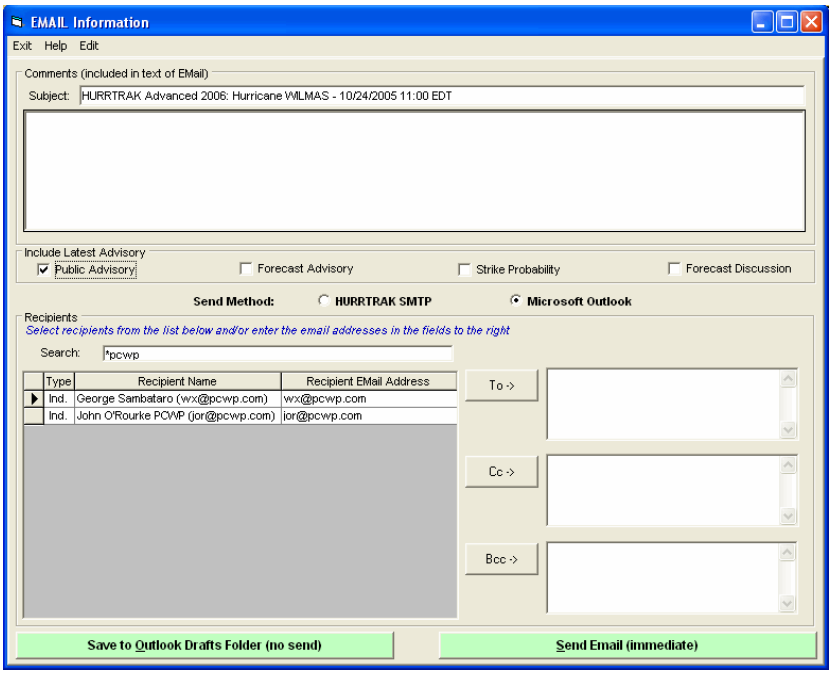
1. You must have an SMTP Internet Email server available to you. If you connected to the Internet via a network server, and you are not sure, check with your network administrator. Go to the Email General Options and define your system's email server parameters. In most cases, you should be able to pull these from the options defined on your current email program.



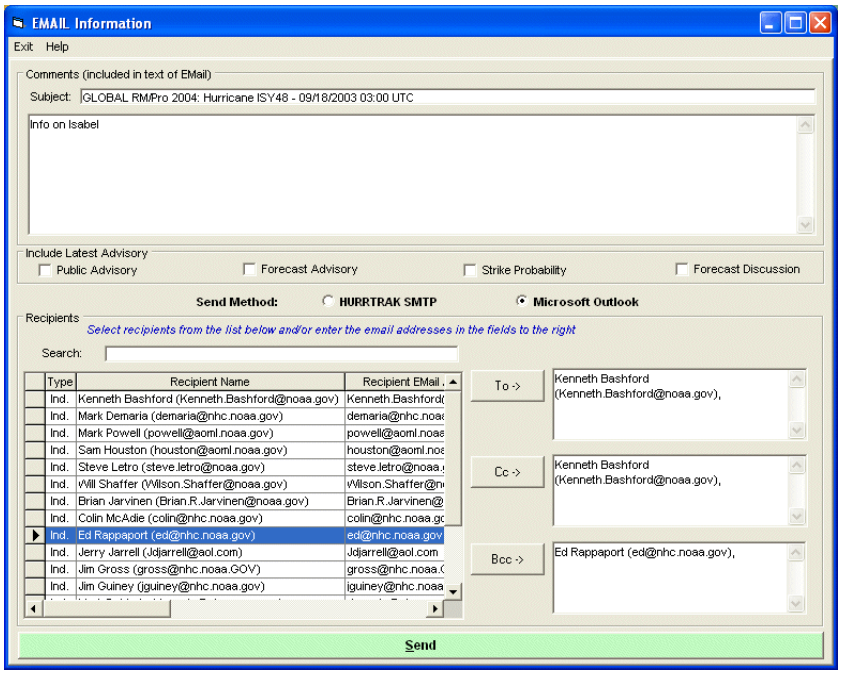
2. You must define the users you want to have the ability to send email messages to. This is a separate Addressbook from your native email system due to the additional data fields required. Go to the Addressbook Options and define your users/recipients and your user groups.



Now, when you are viewing a graphic or report, just hit the Send option and the user will be presented with either the following screen.



or for the MS Outlook method…



Selecting the recipients and "hitting" Send will transmit the message to the server defined.

NOTE: When viewing Emailed reports that have column type data (not recommended), the receiver must change his Email programs viewing font to a non-proportional type (courier, for example).

APPENDIX DD: Microsoft Outlook Considerations

In addition to the Native Hurrtrak SMTP Email capabilities, the system now interfaces with the Outlook address book and Email send capabilities of Microsoft Outlook.

There are several important considerations when using this capabilities that you should be aware of:

1. Outlook 98/2000 installed in the Internet Only Mode (IMO) (Help|About in Outlook) is not supported. This is because Microsoft does not support Extended MAPI in IMO. Microsoft got rid of IMO mode starting in Outlook 2002. Subsequent version of Microsoft Outlook and those installed in C/W mode and Exchange Server installations are OK.

2. Make sure your Email Contact folders in Outlook are marked as **"Show this folder as an Email Addressbook"**. This is a setting in the properties of each contact folder.

3. When setting up your Email capabilities in Hurrtrak, be certain not to select very large contact folders. If you do so, performance will be greatly impacted when showing address book entries. It is difficult to put an exact number on this, but folders with more than 5000 entries should be avoided. If you are in a large corporate environment where you do have large contact folders, I suggest you copy your Hurrtrak contacts from the large folder to a new Outlook contact folder and only select that folder in Hurrtrak Email setup.

4. Although rare, on some installations, when you send an email from Hurrtrak using the Outlook option, the email may remain in the drafts folder. Keeping Outlook open and setting your Outlook system to automatically send/receive every X minutes should take care of this. If this does not, please report this to us and, until it is resolved, manually send this email from Outlook. Please include a screen shot of your Microsoft Outlook's Help-About screen if you contact us for support.

APPENDIX E: Automated EMail Alerts

Email Alerts are a feature in the system which will automatically send and "alert" type Email when certain "conditions" or triggers are met. The Email alerts are processed whenever new storm data is received or if manually started by the user. In addition to the alert text, you can also specify to include a tracking map and the advisories with the alert. There are 6 types of Automated Email Alerts.

ALL UPDATES Alert:
The **All Updates** alert is the only alert which does not have a trigger. This type of alert allows the user to send out information about a storm every time new storm data is received.

NEW STORM Alert:
The **New Storm** alert is exactly what it sounds like. An alert email will be sent whenever a new storm forms.

CATEGORY CHANGE Alert:
The **Category Change** alert is triggered whenever an existing storm change its storm strength category (Saffir-Simpson Scale).

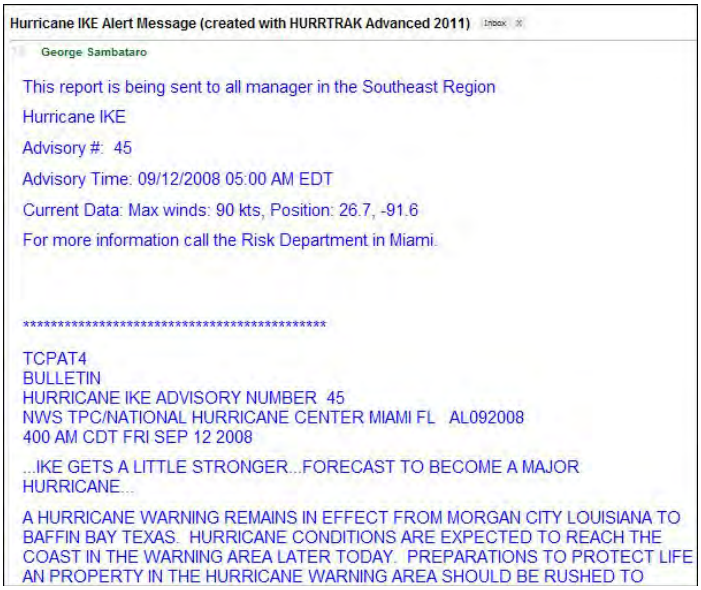
LOCATION Alert:
The **Location** Alert is a special alert that is triggered whenever a storm's forecasted conditions, for a location or group of locations are met. The triggers include, wind speed, timing of wind speed, rainfall, wind probabilities and distance from the location to the center of the storm. This is a very powerful (and the original) alert.

LOCATION GROUP Alert:
The **location group** alert is triggered whenever **ANY** location within a location group is expected to be impacted by a storm. This was added when a customer said "what I really need is to have an email automatically sent to me when ever any of my 5000 locations are expected to bit hit".

GEOGRAPHICAL Alert:
The **Geographical** Alert is triggered whenever a storm is in or expected to enter a defined geographical area.

Examples of each Alert are shown below:

All Updates Alert (this example shows optional user text)


Hurricane IKE Alert Message (created with HURRTRAK Advanced 2011) Inbox

George Sambataro

This report is being sent to all manager in the Southeast Region

Hurricane IKE

Advisory #: 45

Advisory Time: 09/12/2008 05:00 AM EDT

Current Data: Max winds: 90 kts, Position: 26.7, -91.6

For more information call the Risk Department in Miami.

****

TCPAT4
BULLETIN
HURRICANE IKE ADVISORY NUMBER 45
NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL   AL092008
400 AM CDT FRI SEP 12 2008

...IKE GETS A LITTLE STRONGER...FORECAST TO BECOME A MAJOR HURRICANE...

A HURRICANE WARNING REMAINS IN EFFECT FROM MORGAN CITY LOUISIANA TO BAFFIN BAY TEXAS. HURRICANE CONDITIONS ARE EXPECTED TO REACH THE COAST IN THE WARNING AREA LATER TODAY. PREPARATIONS TO PROTECT LIFE AN PROPERTY IN THE HURRICANE WARNING AREA SHOULD BE RUSHED TO

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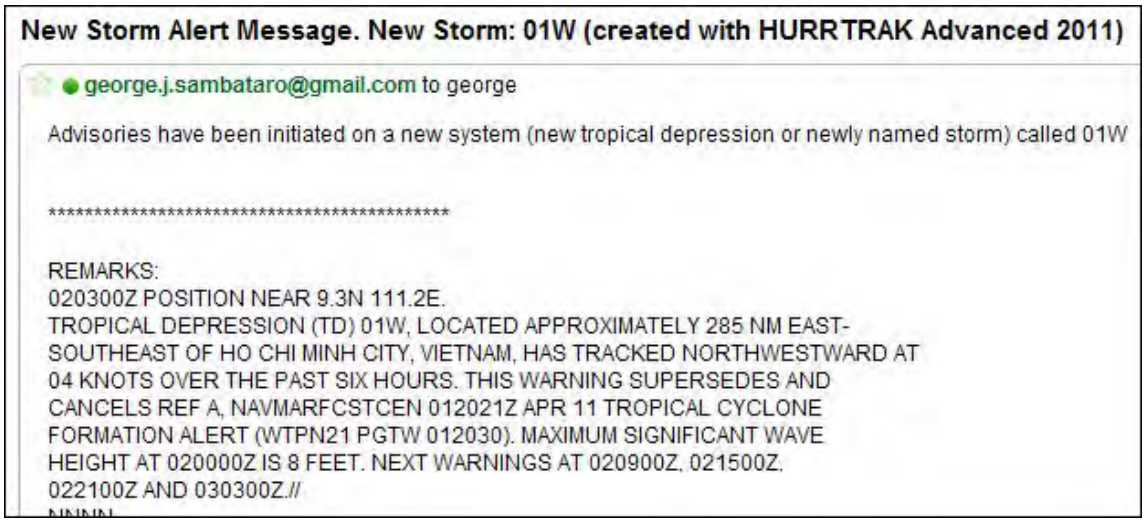
New Storm Alert (example is for Western Pacific storm)



New Storm Alert Message. New Storm: 01W (created with HURRTRAK Advanced 2011)

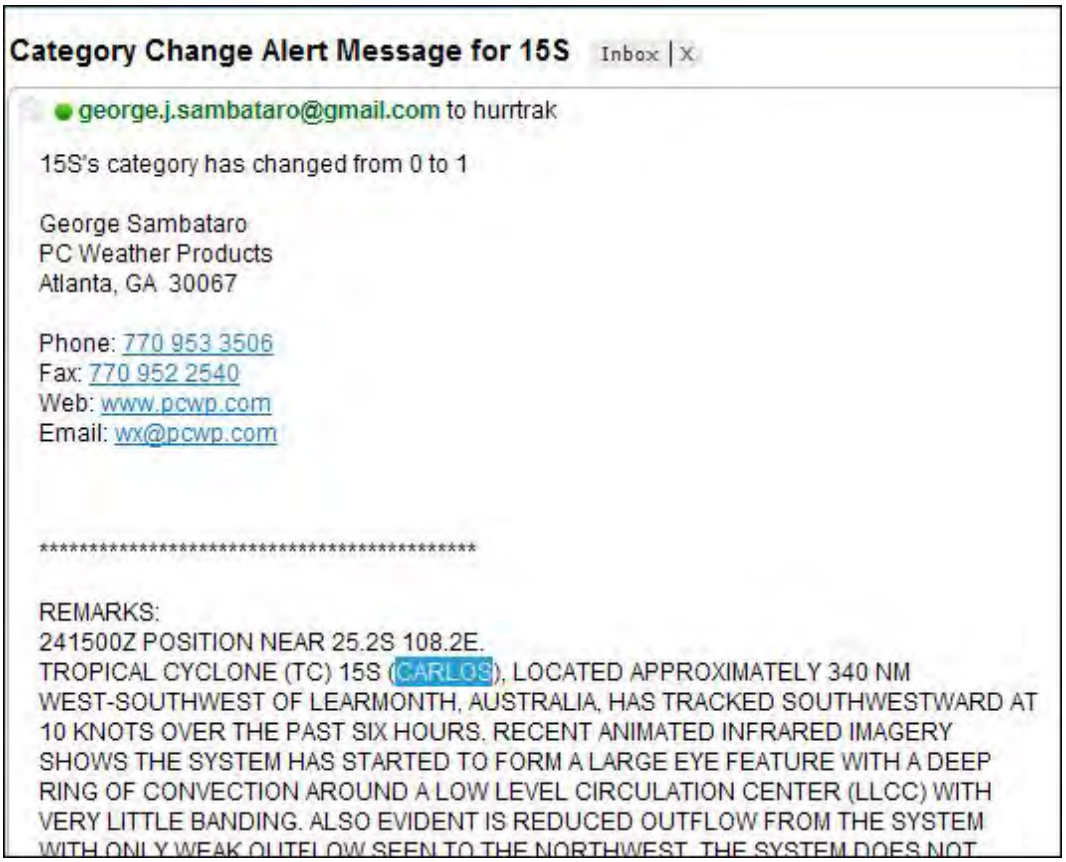
george.j.sambataro@gmail.com to george

Advisories have been initiated on a new system (new tropical depression or newly named storm) called 01W

****

REMARKS:
020300Z POSITION NEAR 9.3N 111.2E.
TROPICAL DEPRESSION (TD) 01W, LOCATED APPROXIMATELY 285 NM EAST-SOUTHEAST OF HO CHI MINH CITY, VIETNAM, HAS TRACKED NORTHWESTWARD AT 04 KNOTS OVER THE PAST SIX HOURS. THIS WARNING SUPERSEDES AND CANCELS REF A, NAVMARFCSTCEN 012021Z APR 11 TROPICAL CYCLONE FORMATION ALERT (WTPN21 PGTW 012030). MAXIMUM SIGNIFICANT WAVE HEIGHT AT 020000Z IS 8 FEET. NEXT WARNINGS AT 020900Z, 021500Z, 022100Z AND 030300Z.//
NNNN

Category Change Alert (SW Pacific Storm in example)



Category Change Alert Message for 15S Inbox | x

george.j.sambataro@gmail.com to hurrtrak

15S's category has changed from 0 to 1

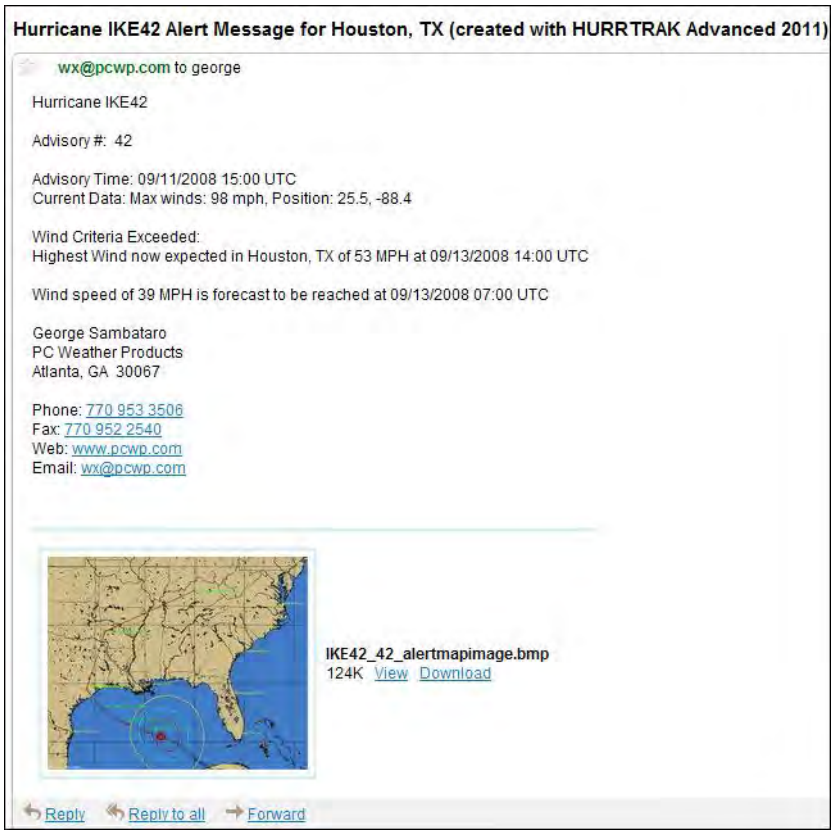
George Sambataro
PC Weather Products
Atlanta, GA 30067

Phone: 770 953 3506
Fax: 770 952 2540
Web: www.pcwp.com
Email: wx@pcwp.com

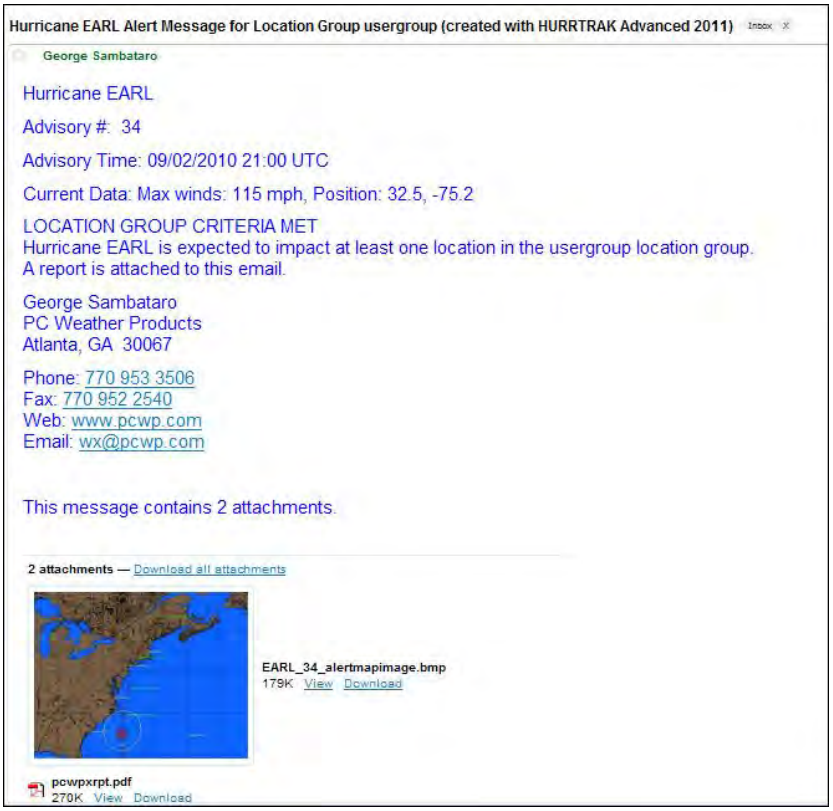
****

REMARKS:
241500Z POSITION NEAR 25.2S 108.2E.
TROPICAL CYCLONE (TC) 15S (CARLOS), LOCATED APPROXIMATELY 340 NM WEST-SOUTHWEST OF LEARMONTH, AUSTRALIA, HAS TRACKED SOUTHWESTWARD AT 10 KNOTS OVER THE PAST SIX HOURS. RECENT ANIMATED INFRARED IMAGERY SHOWS THE SYSTEM HAS STARTED TO FORM A LARGE EYE FEATURE WITH A DEEP RING OF CONVECTION AROUND A LOW LEVEL CIRCULATION CENTER (LLCC) WITH VERY LITTLE BANDING. ALSO EVIDENT IS REDUCED OUTFLOW FROM THE SYSTEM WITH ONLY WEAK OUTFLOW SEEN TO THE NORTHWEST. THE SYSTEM DOES NOT

Location Alert (image included with this example)


Hurricane IKE42 Alert Message for Houston, TX (created with HURRTRAK Advanced 2011)
wx@pcwp.com to george
Hurricane IKE42
Advisory #: 42
Advisory Time: 09/11/2008 15:00 UTC
Current Data: Max winds: 98 mph, Position: 25.5, -88.4
Wind Criteria Exceeded:
Highest Wind now expected in Houston, TX of 53 MPH at 09/13/2008 14:00 UTC
Wind speed of 39 MPH is forecast to be reached at 09/13/2008 07:00 UTC
George Sambataro
PC Weather Products
Atlanta, GA 30067
Phone: 770 953 3506
Fax: 770 952 2540
Web: www.pcwp.com
Email: wx@pcwp.com
IKE42_42_alertmapimage.bmp
124K View Download
Reply
Reply to all
Forward

Location Group Alert (the name of the location group is called usergroup in this example)


Hurricane EARL Alert Message for Location Group usergroup (created with HURRTRAK Advanced 2011)
George Sambataro
Hurricane EARL
Advisory #: 34
Advisory Time: 09/02/2010 21:00 UTC
Current Data: Max winds: 115 mph, Position: 32.5, -75.2
LOCATION GROUP CRITERIA MET
Hurricane EARL is expected to impact at least one location in the usergroup location group.
A report is attached to this email.
George Sambataro
PC Weather Products
Atlanta, GA 30067
Phone: 770 953 3506
Fax: 770 952 2540
Web: www.pcwp.com
Email: wx@pcwp.com
This message contains 2 attachments.
2 attachments — Download all attachments
EARL_34_alertmapimage.bmp
179K View Download
pcwpxrpt.pdf
270K View Download

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Geographical Alert

Hurricane IKE42 Alert Message for Texas (created with HURRTRAK Advanced 2011)

wx@pcwp.com to george

The storm is expected to be in the area near our Texas offices.

Hurricane IKE42

Advisory #: 42

Advisory Time: 09/11/2008 15:00 UTC

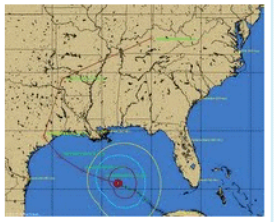
Current Data: Max winds: 98 mph, Position: 25.5, -88.4

Geographical Alert Criteria Met
Hurricane IKE42 is expected to be in the Texas geographical area.

Contact Joe Smo at HQ for more information

George Sambataro
PC Weather Products
Atlanta, GA 30067

Phone: 770 953 3506
Fax: 770 952 2540
Web: www.pcwp.com
Email: wx@pcwp.com



IKE42_42_alertmapimage.bmp
124K View Download

Reply Reply to all Forward

APPENDIX F: Automated Summary Reports

Automated summary reports are reports, typically in PDF format, that are optionally generated without user interaction whenever new storm data is received by the Hurrtrak System. They can be printed/previewed or automatically sent via Email. There are **3 types** of Automated Summary Reports.

Regular/Standard Summary Report:

The **regular/standard** report is designed to provide extensive data about a **single location.** It optionally includes a user defined graphic, narrative impact statement, user diary contents, latest storm position information, watches / warnings, official forecast information, strike probabilities, wind probabilities (when available) forecast impact summary, forecast impact detail, and NHC advisory text.

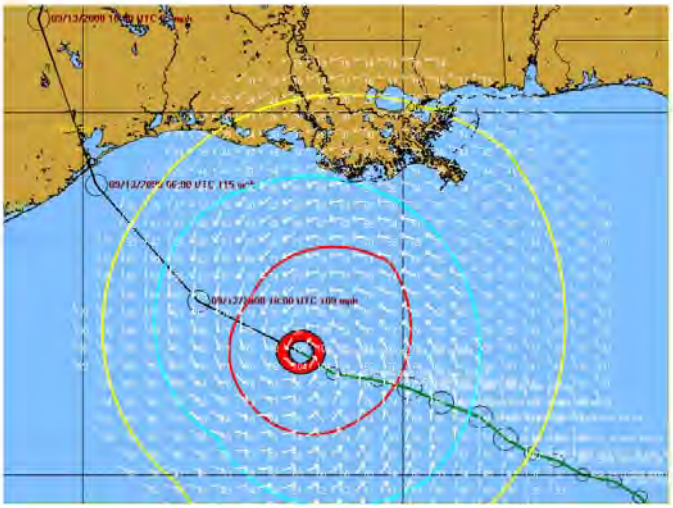
Executive Summary Report:

The **executive** summary report is designed to provide information about a **set of locations**, typically defined by a location group. It is targeted more to the decision maker who may not want to see all of the detailed data and just the "bottom line". It can be created in different formats with options to include/exclude location hourly details, narrative impact statement and summary tabular data.

Risk Impact Summary Report:

The **Risk / Impact** report is designed for users that want to see both the risk factors and the impact to a **set of locations**. It contains a wind impact chart, risk alert conditions and details about the impact to each location. It mirrors the output on the Risk/Impact Tab.

Examples of each Report are shown on the following pages.



Description of impact to Galveston, TX

Galveston, TX is expected to receive a major impact from Hurricane IKE.

Northeasterly gale force winds should start affecting the area on Friday, September 12th at 5 PM UTC with storm force winds arriving around 3 AM and Northeasterly hurricane force winds arriving near 6 AM. The highest wind speeds from Hurricane IKE should occur near 8 AM when top sustained winds, from the Southwest, could reach 100 MPH with gusts near 130 MPH. Winds should decrease below hurricane force shortly thereafter.

Sustained winds will fall below gale force after 6 PM and generally be from the Southwest during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.

Wind damage from Hurricane IKE could be significant with a few homes being shifted off of their foundation and large section of roof removed. It will also likely include collapse of chimneys, garage doors and loss of porches and/or carports.

The total rainfall for the Galveston area over the next 3 days is forecast to be 13.8 inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

There is a good chance that the coastal area 2 nm. Northeast of Galveston could experience a storm surge of 10 feet.

Latest Position: 231 nm. Southeast (131 degrees) of Galveston, TX

Latitude	Longitude	Motion (knots)	Wind Speed (MPH)	Central Pressure (mb)	74 mph NE	74 mph SE	74 mph SW	74 mph NW	58 mph NE	58 mph SE	58 mph SW	58 mph NW	39 mph NE	39 mph SE	39 mph SW	39 mph NW	Eye dia m	Eye wall
26.7	-91.6	304/11	104	953	105	75	60	60	150	150	100	140	240	200	150	180	18	9

Watches and Warnings

Hurricane Warning from Baffin Bay, TX to Morgan City, LA
Tropical Storm Warning from Port Mansfield, TX to Baffin Bay, TX
Tropical Storm Warning from Morgan City, LA to Miss./Alabama border, AL

Official Forecast

Hour	Date (UTC)	Time (UTC)	Latitude	Longitude	Wind Speed (MPH)	74 mph NE	74 mph SE	74 mph SW	74 mph NW	58 mph NE	58 mph SE	58 mph SW	58 mph NW	39 mph NE	39 mph SE	30 mph SW	39 mph NW
Initial	09/12/2008	0900	26.7	-91.6	104	105	075	060	060	150	150	100	140	240	200	150	180

Hurricane IKE *Page 1*
HURRTRAK Advanced 2008 Summary Report for Galveston, TX 09/12/2008 0900 UTC, Adv. # 45

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Hour	Date (UTC)	Time (UTC)	Latitude	Longitude	Wind Speed (MPH)	74 mph NE	74 mph SE	74 mph SW	74 mph NW	58 mph NE	58 mph SE	58 mph SW	58 mph NW	39 mph NE	39 mph SE	30 mph SW	39 mph NW
12	09/12/2008	1800	27.4	-93.2	109	105	075	060	060	150	150	100	140	240	200	150	180
24	09/13/2008	0600	29	-94.8	115	100	100	060	060	150	150	100	090	240	200	150	140
36	09/13/2008	1800	31.3	-95.7	63					060	060	000	000	125	175	075	075
48	09/14/2008	0600	34.4	-94.7	40									050	050	000	000
72	09/15/2008	0600	41	-84	35												

Wind Probabilities for Galveston, TX

34 Knots (39 mph)	50 Knots (58 mph)	64 Knots (74 mph)
96.4	90.5	61.1

Surge Probabilities for Galveston, TX (2 nm. Northeast)

5 Foot Storm Surge	10 Foot Storm Surge	15 Foot Storm Surge	20 Foot Storm Surge
91%	60%	0%	0%

Forecast Impact Summary for Galveston, TX - Advanced Wind Estimation ON

Max Wind (avg/gust)	Max Wind Date/Time	CPA	Rain		Arr. hrs.	Time of arrival	Time of departure	Duration
100 / 130 mph.	Saturday, 09/13/2008 08:30 UTC	2 nm.	13.8"	39 mph	8	09/12/2008 17:30 UTC	09/13/2008 18:00 UTC	26
				58 mph	18	09/13/2008 03:30 UTC	09/13/2008 13:00 UTC	11
				74 mph	21	09/13/2008 06:00 UTC	09/13/2008 10:00 UTC	5

Saturday, 09/13/2008 05:00 UTC	NIGHT	068/088 mph	037				0025	DoD-2
Saturday, 09/13/2008 05:30 UTC	NIGHT	073/095 mph	040				0020	DoD-2
Saturday, 09/13/2008 06:00 UTC	NIGHT	075/097 mph	056				0015	* Eye Wall *, DoD-4
Saturday, 09/13/2008 06:30 UTC	NIGHT	000/000 mph	000				0009	* Eye *
Saturday, 09/13/2008 07:00 UTC	NIGHT	000/000 mph	000				0002	* Eye *
Saturday, 09/13/2008 07:30 UTC	NIGHT	000/000 mph	000				0004	* Eye *
Saturday, 09/13/2008 08:00 UTC	NIGHT	070/091 mph	249				0010	* Eye Wall *, DoD-2
Saturday, 09/13/2008 08:30 UTC	NIGHT	100/130 mph	232				0016	* Eye Wall *, DoD-6
Saturday, 09/13/2008 09:00 UTC	NIGHT	093/121 mph	226				0022	DoD-4
Saturday, 09/13/2008 09:30 UTC	NIGHT	085/110 mph	226				0028	DoD-4
Saturday, 09/13/2008 10:00 UTC	NIGHT	078/101 mph	226				0034	DoD-4
Saturday, 09/13/2008 10:30 UTC	NIGHT	073/094 mph	226				0040	DoD-2
Saturday, 09/13/2008 11:00 UTC	NIGHT	070/091 mph	226			0001	0046	DoD-2
Saturday, 09/13/2008 11:30 UTC	NIGHT	067/087 mph	226			0011	0052	DoD-2

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Executive Summary Report

Example shows narrative impact statement and summary location data

HURRTRAK Advanced 2011

Hurricane IKE
Location Forecast Analysis Summary Report - Advanced Wind Estimation On

Page 1
09/12/2008 05:00 EDT

Hurricane IKE Summary Update	Friday 09/12/2008 05:00 AM EDT Advisory 45
Current NHC Forecast Predictions	
Maximum Sustained Winds / Storm Category:	90 KNOTS / Category 2
Forward motion:	11 knots towards the Northwest
Hurricane Force winds extend from the center:	105 nautical miles
Tropical Storm winds extend from the center:	240 nautical miles
Minimum Pressure:	953 MB
Storm Position:	26.7N, 91.6W
Estimated Coastal Strike County/Parish:	Galveston, Texas
Watches and Warnings	Hurricane Warning from Baffin Bay, TX to Morgan City, LA
	Tropical Storm Warning from Port Mansfield, TX to Baffin Bay, TX
	Tropical Storm Warning from Morgan City, LA to Miss./Alabama border, AL

HURRTRAK Advanced 2011

Hurricane IKE
Location Forecast Analysis Summary Report - Advanced Wind Estimation On

Page 2
09/12/2008 05:00 EDT

Hurricane IKE Summary Update	Friday 09/12/2008 05:00 AM EDT Advisory 45
San Luis Pass, TX	

San Luis Pass, TX is expected to receive a significant impact from Hurricane IKE.

Northerly gale force winds should start affecting the area on Friday, September 12th at 1 PM EDT with storm force winds arriving around 11 PM and Northerly hurricane force winds arriving near 1 AM. The highest wind speeds from Hurricane IKE should occur near 2 AM when top sustained winds, from the North, could reach 78 knots with gusts near 102 knots. Winds should decrease below hurricane force shortly thereafter.

Sustained winds will fall below gale force after 9 AM and generally be from the Southwest during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.

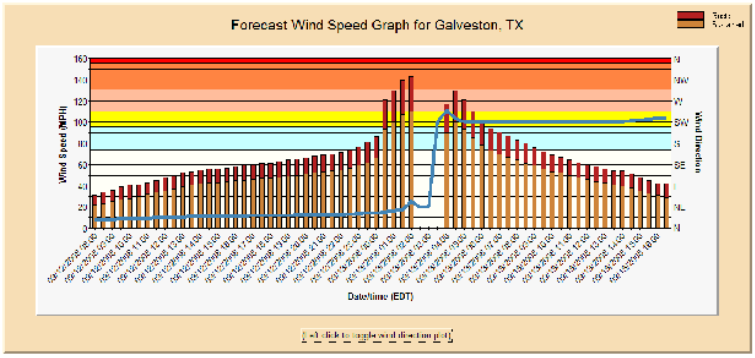
Wind damage from Hurricane IKE could include broken glass in doors and windows. Uplift of roof deck and loss of significant roofing material. It may also include collapse of chimney, garage doors and damage to porches and/or carports.

The total rainfall for the San Luis Pass area over the next 3 days is forecast to be 11.3 inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

There is a good chance that the coastal area 2 nm. Northeast of San Luis Pass could experience a storm surge of 10 feet.

Estimated Time of First Tropical Storm force winds:	Friday 09/12/2008 01:30 PM
Duration of Tropical Storm force winds:	21 hours
Estimated speed of Maximum Winds (Sustained / Gusts)	78 KNOTS / 102 KNOTS
Estimated time of maximum winds:	Saturday 09/13/2008 02:00 AM
Duration of Hurricane Force Winds:	4 hours
Estimated closest point of approach:	15 miles
Forecast Rainfall (3 day total):	11.3 inches
Wind Probabilities (34, 50, 64 knots):	96% 91% 61%
Surge Probabilities (5', 10', 15', 20'):2 nm. Northeast	93% 51% 0% 0%

Risk/Impact Summary Report



Description of impact to Galveston, TX

Galveston, TX is expected to receive a major impact from Hurricane IKE.

Northeasterly gale force winds should start affecting the area on Friday, September 12th at 1 PM EDT with storm force winds arriving around 11 PM and Northeasterly hurricane force winds arriving near 12 AM. The highest wind speeds from Hurricane IKE should occur near 2 AM when top sustained winds, from the Northeast, could reach 110 MPH with gusts near 143 MPH. Winds should decrease below hurricane force 4 hours later.

Sustained winds will fall below gale force after 2 PM and generally be from the Southwest during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.

Wind damage from Hurricane IKE could be quite extensive with some homes shifted off of their foundation, roofs removed and collapse of some exterior walls.

The total rainfall for the Galveston area over the next 3 days is forecast to be 13.8 inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

There is a good chance that the coastal area 2 mi. Northeast of Galveston could experience a storm surge of 10 feet.

Risk Alert Condtions for Galveston, TX

Alert Description	Value	Condition
Wind Probability	90.5	
Wind Probability Tendency	10	
Direction of Movement	7	
Maximum Wind Speed Predicted	96	
Hours till arrival of 39 mph winds	9	
Hours till arrival of Max winds	22	
Forecast Rainfall (3 day total)	13.75 "	

Strike Probabilities for Galveston, TX

TOTAL	Next 24 hours	24 - 36 hours	36 - 48 hours	48-72 hours
46	46	0	0	0

Wind Probabilities for Galveston, TX

34 Knots (39 mph)	50 Knots (58 mph)	64 Knots (74 mph)
96.4	90.5	61.1

Hurricane IKE *Page 1*
HURRTRAK Advanced 2010 | Risk/Impact Report for Galveston, TX (Advanced Wind Estimation ON) | 09/12/2008 0500 EDT, Adv. # 45

Surge Probabilities for Galveston, TX (2 mi. Northeast)

5 Foot Storm Surge	10 Foot Storm Surge	15 Foot Storm Surge	20 Foot Storm Surge
91%	60%	0%	0%

Forecast Impact Summary for Galveston, TX - Advanced Wind Estimation ON

Max Wind (avg/gust)	Max Wind Date/Time	CPA	Rain		Arr. hrs	Time of arrival	Time of departure	Duration
110 / 143 mph	Saturday, 09/13/2008 02:00 EDT	2 mi.	13.8"	39 mph	8	09/12/2008 13:00 EDT	09/13/2008 14:00 EDT	26
				58 mph	18	09/12/2008 23:00 EDT	09/13/2008 09:00 EDT	11
				74 mph	19	09/13/2008 00:30 EDT	09/13/2008 06:00 EDT	7

APPENDIX F2: "Other" Automations

The **Automations** capability basically includes other automatic output that did not fit into the category of Summary Report or EMAIL Alerts. The outputs defined in this function are automatically generated when new storm data is received and can be **saved to a hard drive location and/or sent via Email**. There are 4 types of "other" Automations.

Map Image:

The **Map Image** automation simply generates a tracking map for the storm. The user can define the mapping parameters. This is useful when all you need to do is send an image of the storm track, wind band, etc..

Google Earth:

The **Google Earth** automation generates a KML/KMZ file for the storm with specific outputs defined by the user. This is handy when you want to share information about a storm but would rather have the recipient view it on the Google Earth Interface. Since this is a single file, it is perfect for Emailing.

EXCEL (spreadsheet):

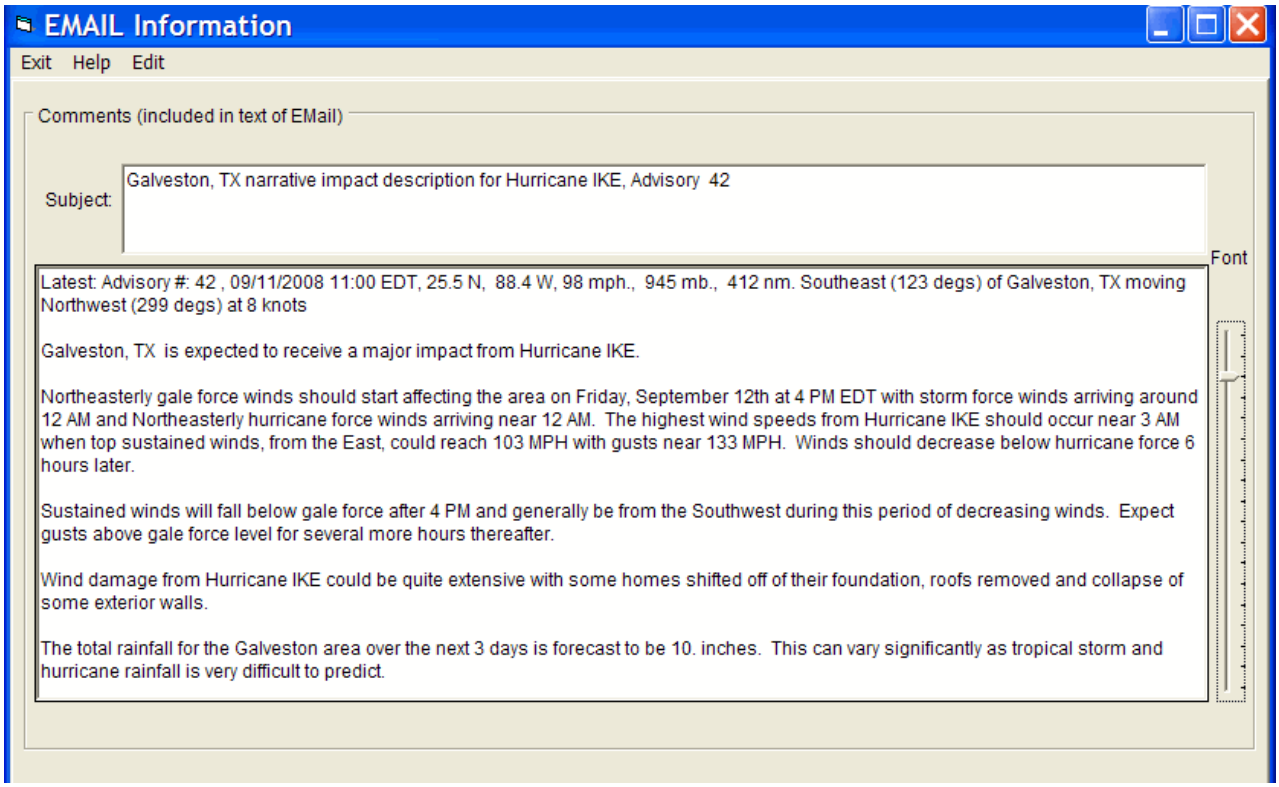
The **EXCEL** automation will create an EXCEL compatible file which contains a impact report information for a location group. For folks who just want a concise report and prefer working with spreadsheets this is the way to go. Perfect for emailing.

SHAPE File:

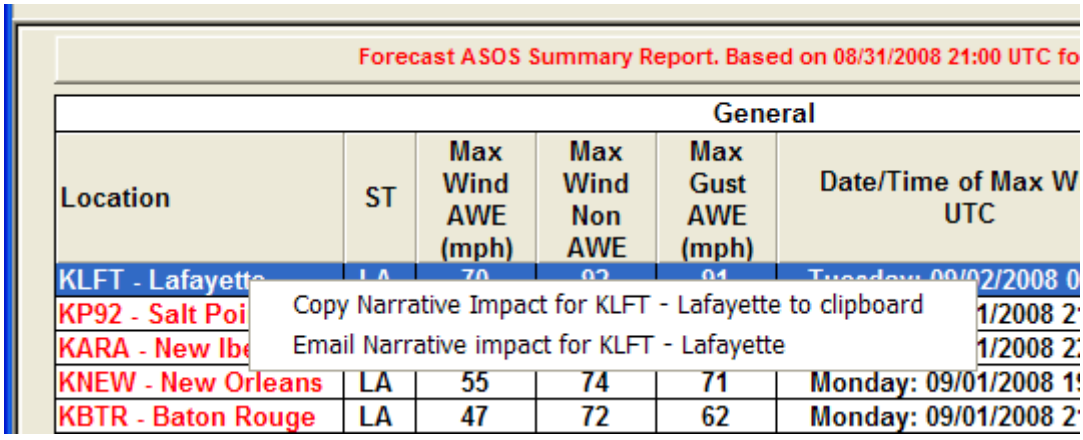
This automation is available only for Hurrtrak Advanced Users. The **SHAPE File automation** allows the user to create multiple ERSI Shape files. The specific outputs can be defined by the user. Because of the potential for a large number of files, it may make more sense to save these files to a network directory and allow your users to view them in that manner… rather than sending them via email.

APPENDIX F3: Narrative Impact Statements

The Narrative Impact Statement is a "computer AI generated" narrative description of the impact to a location. This can be viewed for the base location, any location in a tab based summary impact report and in the formatted summary report. It is available in both the standard and "executive" formats. It can also be emailed by right clicking on the base location or on the location in the tab based summary impact report. An example of the information in these statements is shown below.


EMAIL Information
Exit
Help
Edit
Comments (included in text of EMail)
Subject:
Galveston, TX narrative impact description for Hurricane IKE, Advisory 42
Font
Latest: Advisory #: 42 , 09/11/2008 11:00 EDT, 25.5 N, 88.4 W, 98 mph., 945 mb., 412 nm. Southeast (123 degs) of Galveston, TX moving Northwest (299 degs) at 8 knots
Galveston, TX is expected to receive a major impact from Hurricane IKE.
Northeasterly gale force winds should start affecting the area on Friday, September 12th at 4 PM EDT with storm force winds arriving around 12 AM and Northeasterly hurricane force winds arriving near 12 AM. The highest wind speeds from Hurricane IKE should occur near 3 AM when top sustained winds, from the East, could reach 103 MPH with gusts near 133 MPH. Winds should decrease below hurricane force 6 hours later.
Sustained winds will fall below gale force after 4 PM and generally be from the Southwest during this period of decreasing winds. Expect gusts above gale force level for several more hours thereafter.
Wind damage from Hurricane IKE could be quite extensive with some homes shifted off of their foundation, roofs removed and collapse of some exterior walls.
The total rainfall for the Galveston area over the next 3 days is forecast to be 10. inches. This can vary significantly as tropical storm and hurricane rainfall is very difficult to predict.

It can be viewed or emailed by right clicking on a location in the location impact summary report.



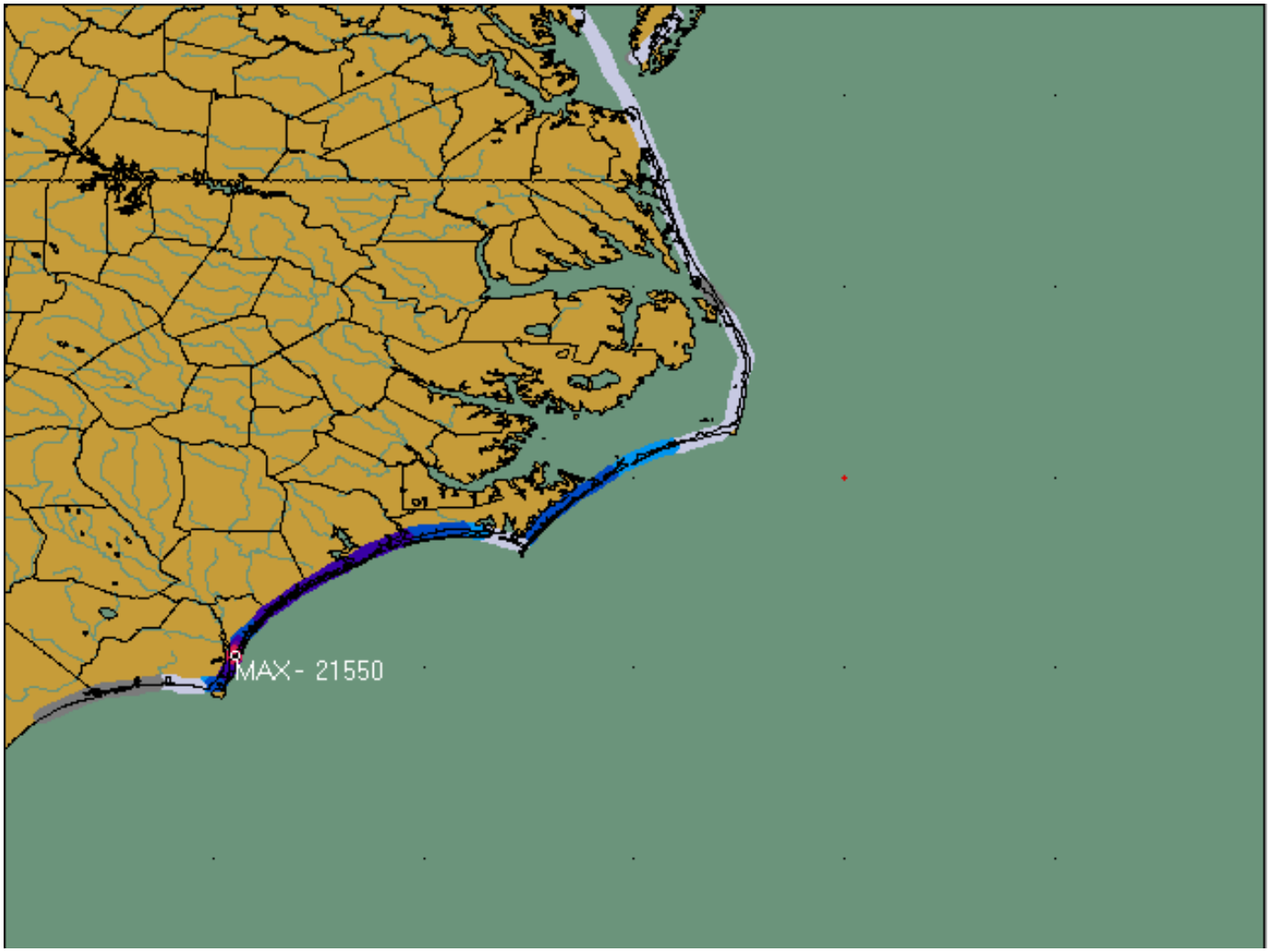
APPENDIX G: Flood Index Summary

The **flood index** is an internally calculated algorithm that is designed to display the area of the coastline most likely to experience the highest flooding due to storm surge and wind-driven water. In the case of "Actual" analysis, it displays the actual flood index for an area of the coastline (as shown in the graphic below). **The value is an index and does not equate to any specific level of flooding.**

The flood index's main component is the strength and duration of the onshore wind flow. **It does NOT take into account the bathometry of the ocean floor nor any possible funneling situations, such as a strong SW flow into Tampa Bay. For this data, you should refer to the SLOSH Data charts.**

In addition, you should not focus on the exact location of the forecasted maximum flood index since small changes in the storm's path will dramatically affect the area with the highest storm surge. It is best to use this data only within a few hours of landfall and in conjunction with the SLOSH information.

An example of a plotted Actual flood index for Hurricane Fran is shown below:



APPENDIX H: SLOSH Data Summary

The HURRTRAK system contains some of the SLOSH Storm Surge data. Only the Hurrtrak Advanced system has the SLOSH MEOW data. The **SLOSH Storm Surge data** is compiled by the National Weather Service to assist emergency management officials determine the risk of hurricane-related storm surge flooding in their area. It is analyzed and created by "slosh basin" and takes into consideration the coastal bathometry, as well as the effects of water being funneled into certain areas of the coastline.

The SLOSH analysis has been done for the most of the US Coastline, Puerto Rico and the US Virgin Islands. There are two types of analysis related to SLOSH.

MEOW - (Maximum Envelope of Water) and **MOM** (Maximum of Maximum)

The National Weather Service calculates the SLOSH Storm Surge, MEOW's and MOM's as follows...

For each slosh basin:

1. Select hypothetical storms appropriate to those found from historical record: storm directions, forward speeds, (Saffir-Simpson) intensities, sizes (radius of maximum winds, or RMW), and landfall sites sufficiently close together (typically 15 miles or less) to adequately map the surge flood plain.

2. Generate the set of hypothetical storms. Typically, there will be about 10 directions, 4 forward speeds, 5 intensities and 10 to 20 landfall points*, resulting in 2000 to 4000 individual storms.

*Because the average error of forecast position of eye landfall is about +/- 100 miles in 24 hours, no single storm is sufficient to map the potential for storm surge flooding in a basin in advance of storm landfall, as the likelihood of having chosen exactly the correct track is dangerously too small. Instead, the SLOSH model is run with a family of storms. In the family, all storms share the same intensity, size, speed and direction. For example, the storm surge flood plain of a basin by Cat 3 hurricanes, heading northwest at 15 mph will be calculated by running SLOSH with a succession of NW15C3 storms that have landfall sites separated by 5 or 10 or 15 miles from those flanking it. Then, after all the storms in a family have been run, the maximum surge value at each grid square in the basin, from any storm in that family, is retained. The result is a Maximum Envelope Of Water, (or **MEOW**), for the NW15mph Category 3 storms, in the above example.

3. Create **MEOW** maps of SLOSH modeled storm surge, for each combination of storm direction, speed, Saffir-Simpson intensity and initial datums (in the case of the Lake Okeechobee and Cape Canaveral basins). In the example #2 above, (10 directions, 4 speeds and 5 Saffir-Simpson Categories), there would be 200 **MEOWs**.

4. Consolidate **MEOW** results, (if requested to do so by emergency officials), into maps of MEOWS Of MEOWS or **MOMs**. Typically, **MOMs** depict surge flooding for each intensity ONLY, regardless of storm direction or speed. However, in other instances, the **MEOWs** of the two faster speeds** were consolidated to create five "FAST **MOMs**", while **MEOWs** of the two slower speeds were consolidated to create five "SLOW **MOMs**".

** Faster storms create higher surge on coastlines than do slower storms. Slower storms create higher surge values further inland (because there is more time available to pump water) up rivers or into heads of bays, than do faster storms.

Simply put, the **MEOW** analysis represents the highest water* due to a "family" of parallel tracks with the same direction, speed and intensity. The analysis is done for varying storm direction, speed of movement and category. For example, a **MEOW** exists for a Cat 4 storm moving from the east at 12 mph into the Miami SLOSH basin. The **MOM** data is the "Maximum of Maximum or "Meows Of Meows" or the highest water* due to a composite of **MEOWs**.

This system includes the **MOM** data for all of the analyzed basins. While most are shown by storm category, some basins have more qualified **MOMs** (see Charleston, SC).

An example of a Cat 4 **MOM** for Tampa Bay is shown on page 294.

* IMPORTANT NOTE: All of the SLOSH surge heights are referenced to NGVD - National Geodetic Vertical Datum (the mean sea level as

determined in 1929.) This is the same reference the USGS uses for its quadrangle maps. So, when you see a 10 surge for a given area, you expect flooding up to the 10 foot contour on the quadrangle map at that location. Imagine that there's a 10 foot surge in an area. One house has a base elevation of 11 feet, so it is "high and dry," but a neighboring house which is at 9 feet will get one foot of flooding in its home.

Example of a Cat. 4 MOM on standard chart for Tampa Bay

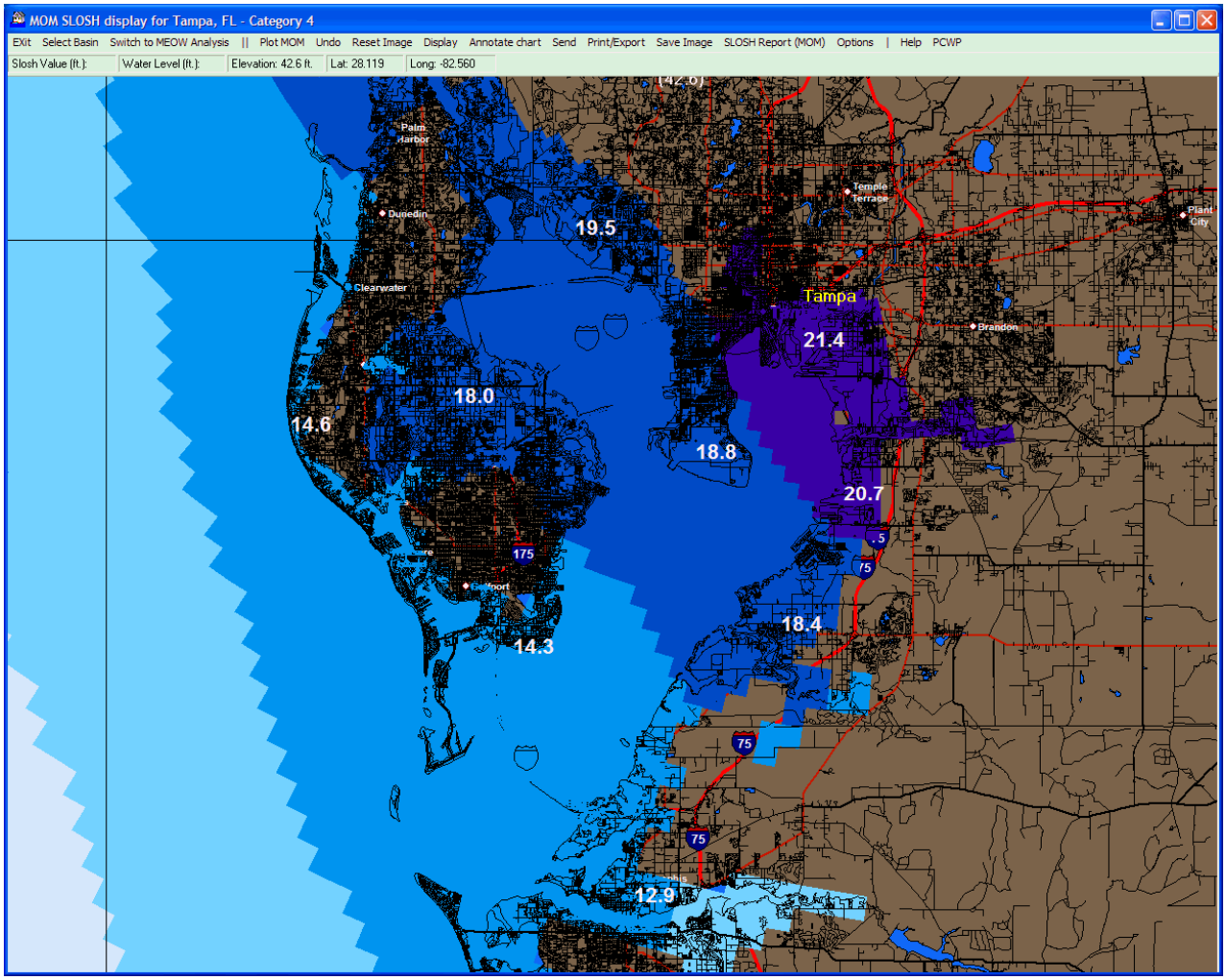


Figure 16

APPENDIX I: SLOSH Inundation Analysis

The SLOSH Inundation Analysis represents the potential storm surge water level that an area may expect for a category of storm. It is available in limited form in the HURRTRAK EM/Pro system and completely in the RM/Pro system. For more details, read on.

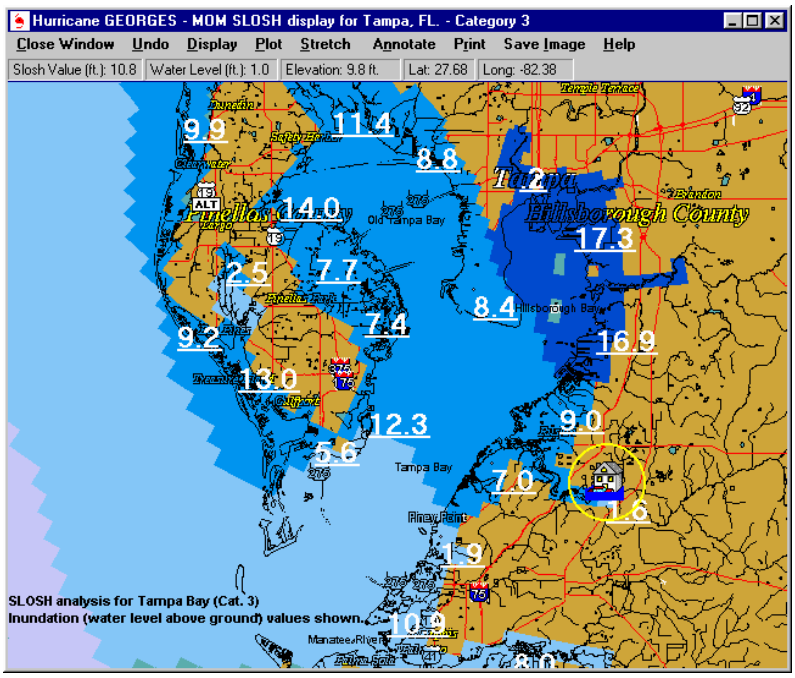
The **SLOSH Storm Surge data** indicates the highest water (above sea level) that coastal areas may expect for a certain category of storm. For a separate discussion on how SLOSH was developed, see page 293.

The SLOSH data is just part of the "equation" in determining the extent of storm surge flooding. The other part is the elevation of the inland areas in those areas. For example, the areas to the East of Mobile Bay have a sharp rise in elevation very close to the coast, while areas like Florida Bay or the Savannah River Basis have a slow rise, thus allowing for greater flooding further inland. In addition, the SLOSH data analyzes flood level in "rectangular" segments. The differences in elevation across these segments are sometimes significant, so while one part of the segment is "under water," other parts may not be. SLOSH alone will indicate the entire area as "flooded".

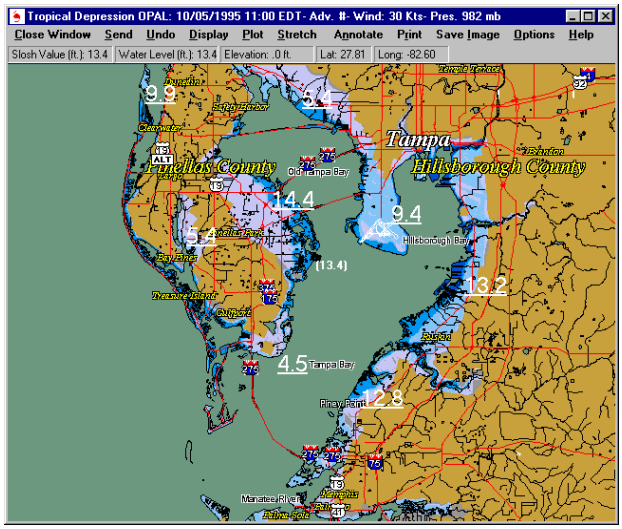
To include the second part of the equation, the HURRTRAK system now includes the 1 arc-second USGS elevation data for all the areas along the US Coastline, PR and the USVI.

When the SLOSH data is "combined" with the elevation data, the result is the SLOSH Inundation Analysis. The system represents that water level (inundation) value with colors.

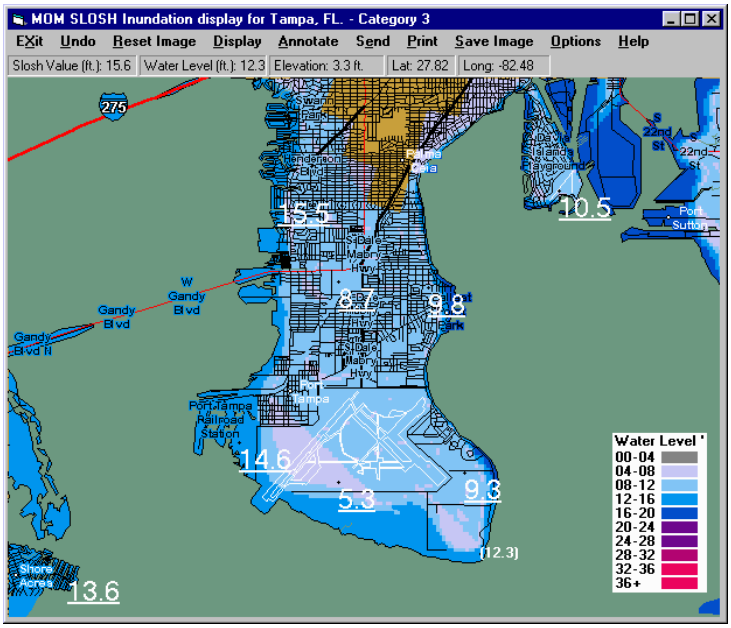
The following is an example of a Category 3 SLOSH analysis using Standard HURRTRAK Charts, showing inundation value as text (Em/Pro).



The following is an example of a Category 3 Inundation analysis using standard HURRTRAK charts (RM/Pro). In this case the inundation levels are analyzed.


Tropical Depression OPAL: 10/05/1995 11:00 EDT- Adv. 8- Wind: 30 Kts- Pres. 982 mb
Close Window Send Undo Display Plot Stretch Annotate Print Save Image Options Help
Slosh Value (ft.): 13.4 Water Level (ft.): 13.4 Elevation: .0 ft. Lat: 27.81 Long: -82.60
Tampa
Pinellas County
Hillsborough County
9.8
14.4
9.4
13.2
4.5
2.8
(13.4)

The following is an example of a Category 3 Inundation Analysis using the SLOSHVIEW program (RM/Pro).



There are a couple of important things to consider when viewing the Inundation data:

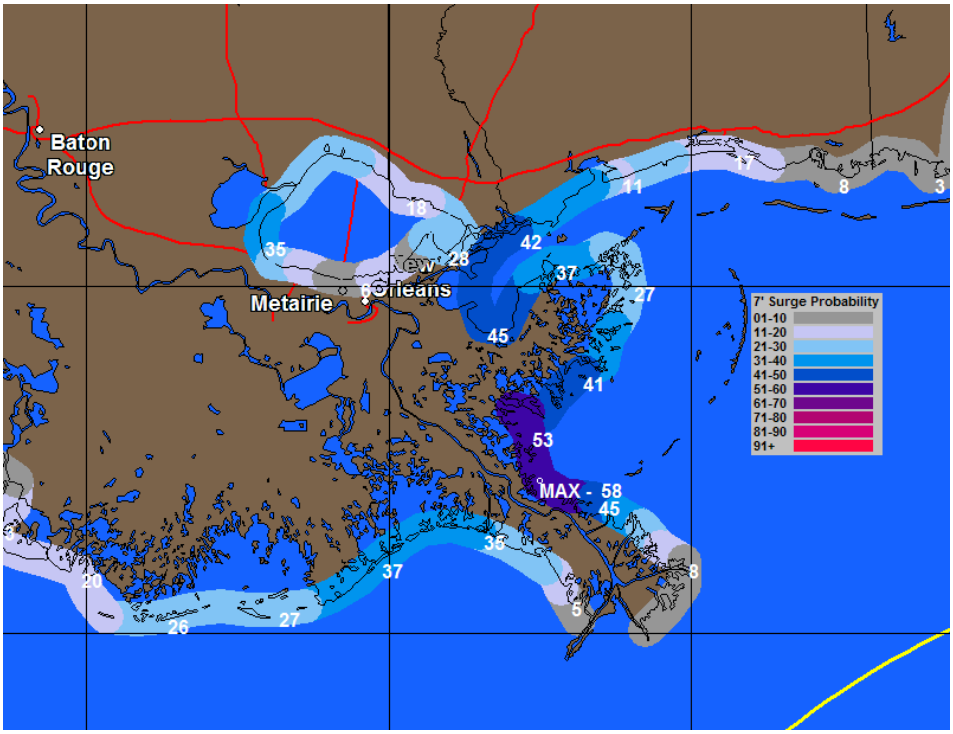
1. Do not attempt to analyze at too detailed a chart level. Using the SLOSHVIEW program, you can zoom down to the street level....however, neither the SLOSH data nor the elevation data is resolved to that level of detail.

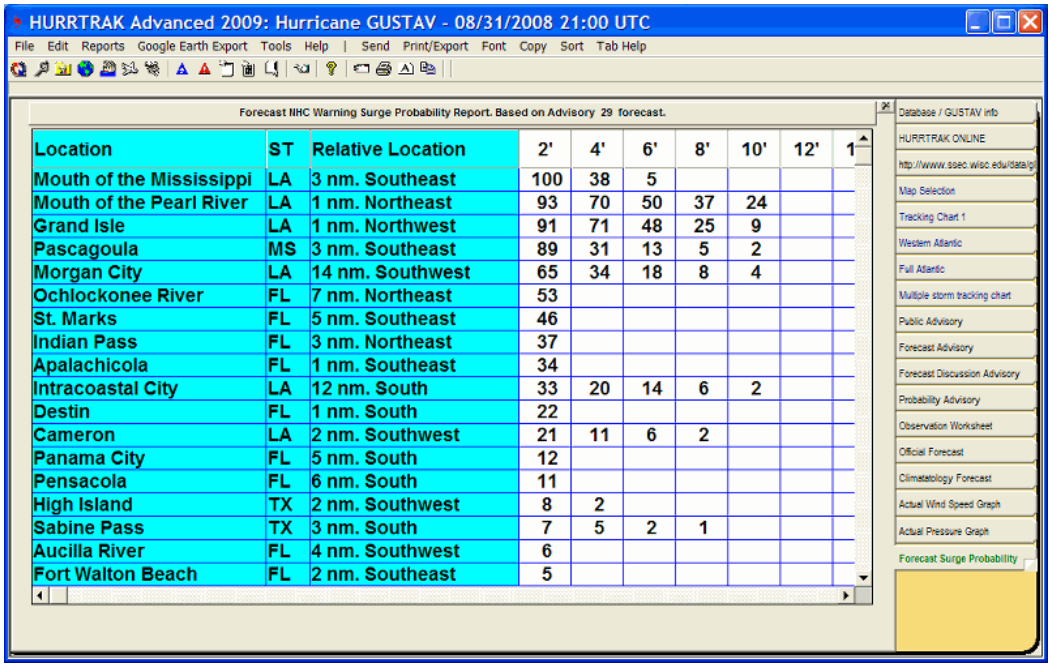
2. Depending on your processor, it may take quite a while to render the inundation images. A status bar gives you some indication of progress and you can stop the process at any time. Using the smaller charts and running in true color mode (24+ bit color) will provide the best performance. Large maps and lower color capabilities will take the longest. You can check your system video color settings on Windows in Control Panel Display Settings.

3. In HURRTRAK EM/Pro, inundation values may be viewed and labeled on a "standard" SLOSH analysis chart. Complete graphic representation (plots) is only currently available in the RM/Pro system.

APPENDIX I2: Storm Surge Probabilities

Storm surge probabilities are processed by NOAA and are available about 1 hour after the official advisory time. For example, the advisory issued at 11 AM EDT will not have surge probabilities until about Noon EDT. The information is downloaded and processed by the Hurrtrak Online Servers and delivered to you system as soon as possible. You can view surge probabilities in either graphic or report format.

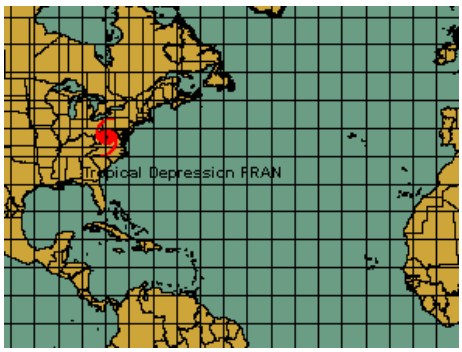



HURRTRAK Advanced 2009: Hurricane GUSTAV - 08/31/2008 21:00 UTC
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Sort Tab Help
Forecast NHC Warning Surge Probability Report. Based on Advisory 29 forecast.
Database / GUSTAV info
HURRTRAK ONLINE
Map Selection
Tracking Chart 1
Western Atlantic
Full Atlantic
Multiple storm tracking chart
Public Advisory
Forecast Advisory
Forecast Discussion Advisory
Probability Advisory
Observation Worksheet
Official Forecast
Climatology Forecast
Actual Wind Speed Graph
Actual Pressure Graph
Forecast Surge Probability

Location	ST	Relative Location	2'	4'	6'	8'	10'	12'	1
Mouth of the Mississippi	LA	3 nm. Southeast	100	38	5				
Mouth of the Pearl River	LA	1 nm. Northeast	93	70	50	37	24		
Grand Isle	LA	1 nm. Northwest	91	71	48	25	9		
Pascagoula	MS	3 nm. Southeast	89	31	13	5	2		
Morgan City	LA	14 nm. Southwest	65	34	18	8	4		
Ochlockonee River	FL	7 nm. Northeast	53						
St. Marks	FL	5 nm. Southeast	46						
Indian Pass	FL	3 nm. Northeast	37						
Apalachicola	FL	1 nm. Southeast	34						
Intracoastal City	LA	12 nm. South	33	20	14	6	2		
Destin	FL	1 nm. South	22						
Cameron	LA	2 nm. Southwest	21	11	6	2			
Panama City	FL	5 nm. South	12						
Pensacola	FL	6 nm. South	11						
High Island	TX	2 nm. Southwest	8	2					
Sabine Pass	TX	3 nm. South	7	5	2	1			
Aucilla River	FL	4 nm. Southwest	6						
Fort Walton Beach	FL	2 nm. Southeast	5						

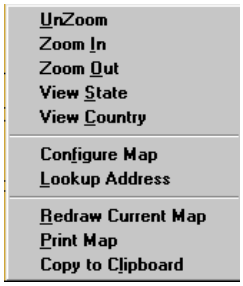
APPENDIX J: Legacy Pan and Zoom mapping

While the tracking system has a “true” pan and zoom implementation, some of the other modules (Recon, Sloshview, Model Display, HWIND) in the system use the built in “legacy” pan and zoom maps. The mapping database (TIger/Line 2006) for the variable size maps, is current, extremely detailed and allows the user to display maps from a large scale all the way down to street level.



Mouse-controlled map functions are:

Moving Map - The map area can be shifted by either using the scroll bars on the right and bottom of the screen or by holding down the Ctrl key and "hand" moving with the left mouse bottom depressed. You may also move the map using the scroll bars.
Zoom - Zooming in can be accomplished by "rubber-banding" area selection using the left mouse button. The user can also use the "zoom in" and "zoom out" tool icons.
Right Mouse Click controlled functions are:



UnZoom - This option undoes the latest zoom in or zoom out.
Zoom In - This option changes the current map to a smaller scale
Zoom Out - This option changes the current map to a larger scale
View State - This option changes the current map to a scale that will fit the entire state currently in the map view. Note: If you are not within a state boundary (like in an ocean area), this function will display a blank map.
Configure Map - This option is a built-in function of the mapping system and is not supported by PC Weather Products. You may experiment with the options displayed, as none of the changes made are permanent.
Lookup Address - This option allows the user to display a map centered on an address. Use street address, city, state and zip.
Redraw Current Map - This option redisplays the current map.
Print Map - This option is a built-in function of the mapping system and is not supported by PC Weather Products. Use at your own risk.
Copy to Clipboard - This option will copy the current map to the windows clipboard. This is also a built-in mapping system function. Do not confuse this with the copy to clipboard function that is available after displaying a storm track.

APPENDIX J1: HURRRAK Maps / Tracking Charts

The system's mapping capabilities are somewhat varied depending on the type of tracking map you use.

Fixed Maps - To maintain compatibility with prior versions, fixed maps are available. They are predefined and cover all of the tropical regions.
Pan/Zoom Maps - Greatly enhanced in 2008, the user has the ability to zoom in and out, or pan in any direction on ANY tracking map.
Specialty Maps - Radar and Satellite tracking charts are special types of fixed tracking charts. The radar and satellite chart (including SST) are obtained via a connection to the Internet. It is important to note that panning or zooming on these types of charts will result in a "standard" tracking map.... not a zoomed-in satellite or radar image.

Fixed ("favorite") Maps
How it works...
There are a considerable number of fixed tracking charts that are included with the system. These tracking charts are shown on the "favorite" tracking chart tabs (up to 3 tabs). The user can move from one chart to another by selecting the Next, Prior and Best Map button. Once selected, this map will always be on this tab until changed.
Sizes:
They come in three standard sizes.. 640x480, 1024x768 and 1400x1048. The size map displayed is controlled in General Options.

Custom maps:
Five of the fixed maps are actually custom maps. This allows the user to create their own "fixed" map. There are two ways to do this.
1. Use the Custom Map Creation Function.
2. From the "Map Select" tab, utilize the "Save as Custom Map" option. This will save the current map view as a custom map. Note: Unless the county outlines are shown before "saving", you will not be able to view them when used on a favorite tab.

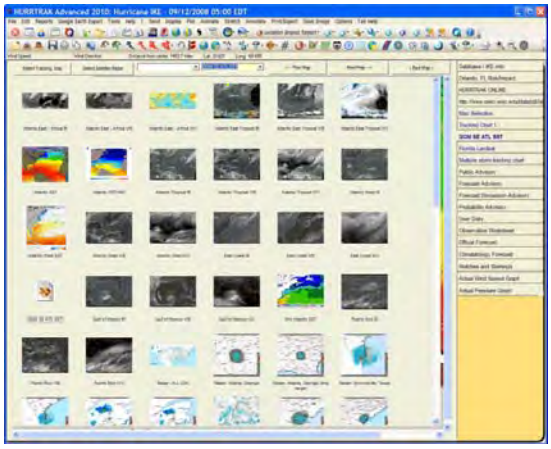
Misc:
If the user pans or zooms the special topographical fixed map, the re-plotted map will result in a "standard" tracking map, not a zoomed-in topographical map.

Pan/Zoom Maps
How it works...
The user has the ability to zoom in and out, or pan in any direction on ANY tracking map. This includes mouse "rubber-banding". The system will display the new map area / zoom level and re-plot all of the items originally plotted on the chart. These charts can be zoomed down to street level.
Sizes:
The new map size is dependent on the size of the Hurrtrak "window" as the system will create a map at the largest size possible.
Misc:
- All of the items plotted on the original tracking chart (i.e. forecast track, wind field, locations, etc.) will replot on the new zoomed image. The only exception are any chart notes and legends as they are manually placed by the user.
- The Map Selection Tab is automatically used when the system creates the new map image.
- The toolbar has specific icons for assisting the user in the pan and zoom action. The bull's-eye icon re-centers the map at the storm location, while the arrows will pan the map in the direction indicated.

Speciality Maps
Satellite, SST and Radar image Maps

How it works...
Hurrtrak Online users are able to plot a storm on certain Satellite, Sea Surface Temperature, and Radar images. The source for these maps is from 3rd party free Internet web sites.

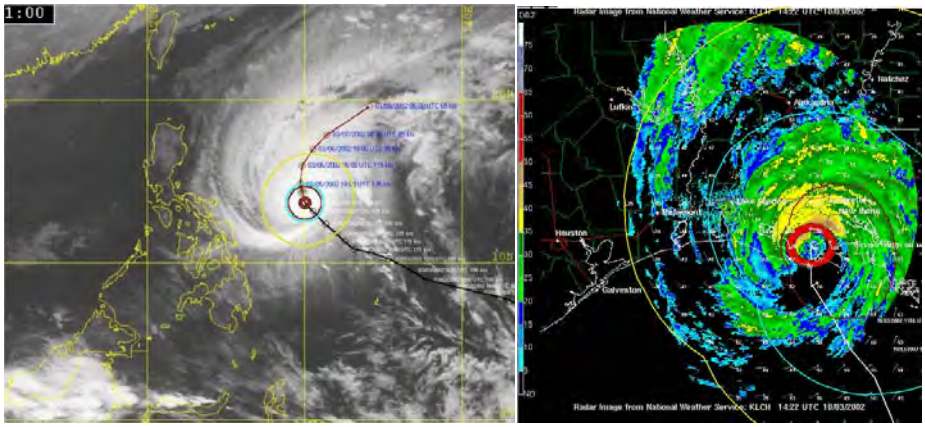
How to select...
These images are selected from any of the three Fixed Tracking Charts by selecting the Satellite/Radar command button or the dropdown list on any of the "fixed map" tabs i.e. You must first be looking at a tracking chart image before they can be selected. The command button will display the thumbnail sized images of all of the satellite, sea surface temperature (SST) and Radar images that are available for overlaying storm tracks on top of. See example below…



Otherwise you can select from the drop down list

Sizes:
They come in various sizes and can be scrolled if the image is larger than your display area.

Misc:
These images can be quite large (300K), so a fast Internet connection is recommended. Examples of a Typhoon and Radar plot are shown below.

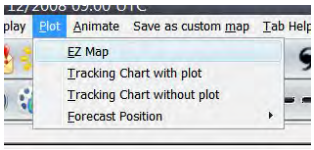


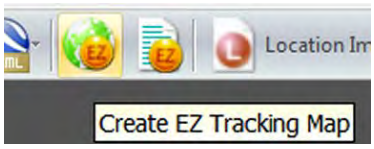
APPENDIX K: E-Z Map option

The E-Z Map was initially designed for new users of the Hurrtrak system to assist them in being immediately productive.

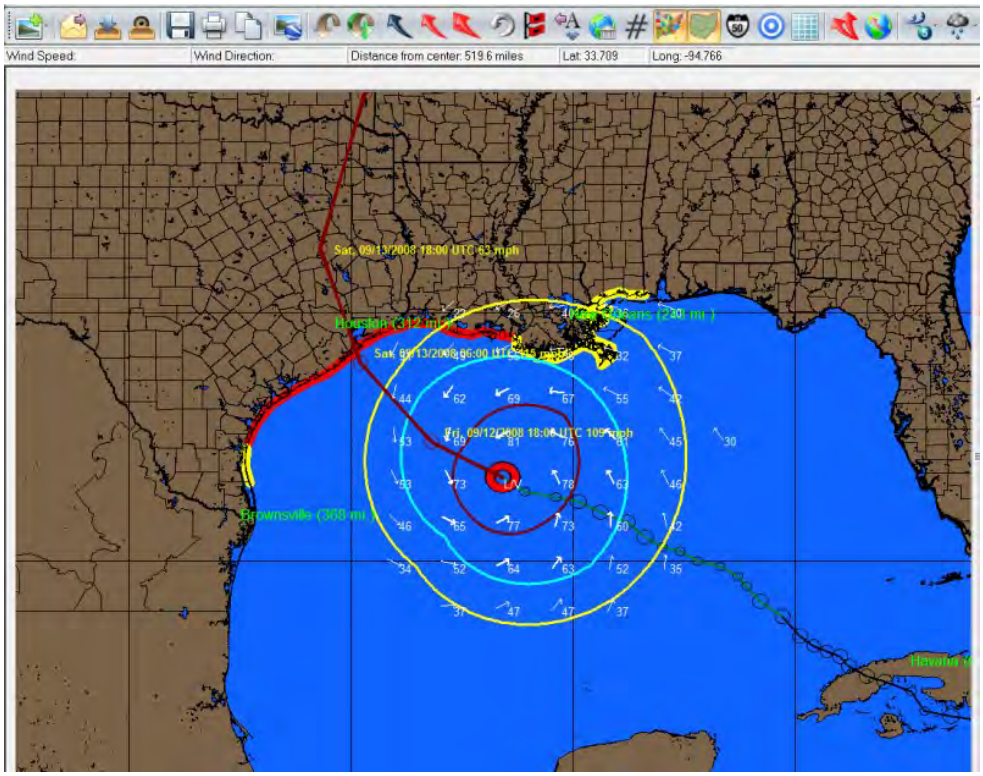
When the user selects the EZ Map option, the system generates a tracking map for a current storm with all of the most common plot options. The user can choose anything from a default to user specific options.

It is very simple, when the user selected the EZ Map option from the menu bar or the toolbar...





a tracking map is created with several plotting options.



At this point the user can zoom in or out, select or deselect plotting options, etc. but in most cases further plotting selecting is not required. The system is installed with a default set of "EZ" plotting options... however the user can control what is automatically plotted by this function by changing them in the General User Option (see page 68).

APPENDIX L: GIS Wind Band Export

The system includes the ability to export the actual, forecast, or both actual and forecast wind band data in an ArcInfo™ GIS importable format. This allows the user to do further analysis with that tool. The export format is generic enough so that it could easily be converted to other GIS tool formats by the user. The default wind bands are 34, 50 and 64 knots, however this can be easily changed in the general options (see page 68) to any set of wind values (up to 10) desired.

When the Export Wind Data is selected from the FILE menu, the system plots the wind bands desired over a "blank map" and then processes this data. The entire process takes anywhere from 20 seconds to several minutes, depending on processor speed. During processing, two files are written out to the directory specified in the general options (GIS tab). If no location was specified, it will be written to the application's temp directory.

File Descriptions:

filename.att

This file contains the wind band attributes information.
An example of the data is shown below. Here, the file indicates three wind areas of 34, 50 and 64 knots

1,34
2,50
3,64

filename.dat

This file contains the latitude & longitude boundaries for each attribute.
example data:

1,auto
-83.37891,28.85417
-83.37891,28.80859
-83.37891,28.76302
-83.37891,28.71745
-83.37891,28.67188
..
.

where filename is a variable with the following naming convention:

filename= stormname + advisory number + type

where type = F (forecast), A (actual) or B (both actual and forecast)

e.g. FLOYD20F indicates this analysis is done for storm Floyd, advisory 20, forecast data only.

ArcInfo™ IMPORT PROCESS:
The following describes the process for importing the exported wind band data into ArcInfo™.

Data Files:
filename.dat - A text filed formatted to be used by the Arc/Info "GENERATE" command.

filename.att - A text file of attribute information for populating the Arc/Info coverage generated by the "GENERATE" command.

Process:

1. Create an Arc/Info coverage from the filename.att file.

2. Establish topology for the coverage using BUILD.

3. Load xport.att into INFO table.

4. Join coverage with INFO table (attribute data).

5. Result - a coverage with topology and attribute data that can be used in Arc/Info, ArcView, or loaded into SDE.

Steps:

* Use the "GENERATE" command in Arc to create an Arc/Info polygon Coverage.

* To create topology, you will need to then use the Arc/Info "BUILD" command with the "POLY" option. This will separate the overlaying wind band areas into distinct, spatially related polygons.

** After this process, the "USER-ID" (in the INFO table) of the first two polygons (surrounding polygons) becomes zero. You will need to re-assign the "USER-ID" in TABLES or INFO in order to match its attribute table. The "USER-ID" is the key to correctly joining the polygon information with the attribute information.

* Use TABLES or INFO to create the database file for loading filename.att. The DEFINE command is used to create the table structure. After the structure is created, use the "ADD FROM" command to add the records from the filename.att file.

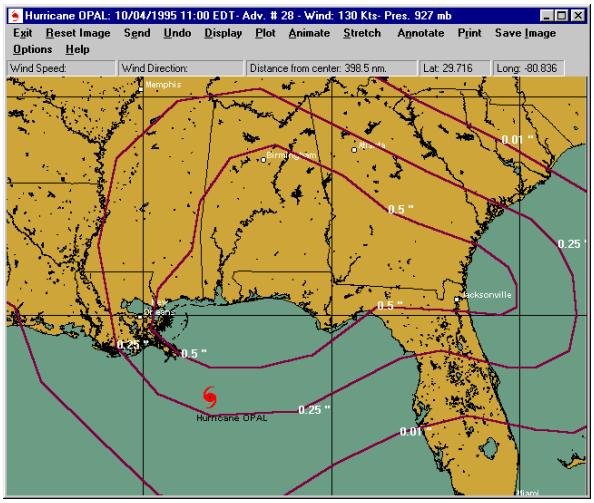
* After the table and coverage are created, join the two by using the Arc/Info "JOINITEM" command.

If you have any suggested additions or changes to this process, please contact us at support@pcwp.com.

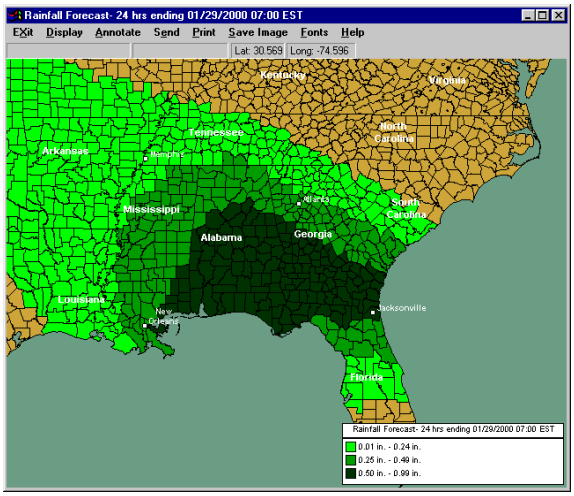
APPENDIX M: Rainfall Forecast Capabilities

The HURRTRAK software coupled with HURRTRAK ONLINE allows the user to depict that latest Quantitative Precipitation Forecast (QPF) information. It can be displayed in either an analysis format or a color-shaded county thematic format. The QPF information is issued by the National Weather Services Hydrological Prediction Center. Please note, while the QPF information does a good job of showing the location of "normal" precipitation amounts, it is not designed to forecast excessive precipitation amounts over a "small" area. The information is presented in the HURRTRAK system in one of the two following formats:

ANALYSIS

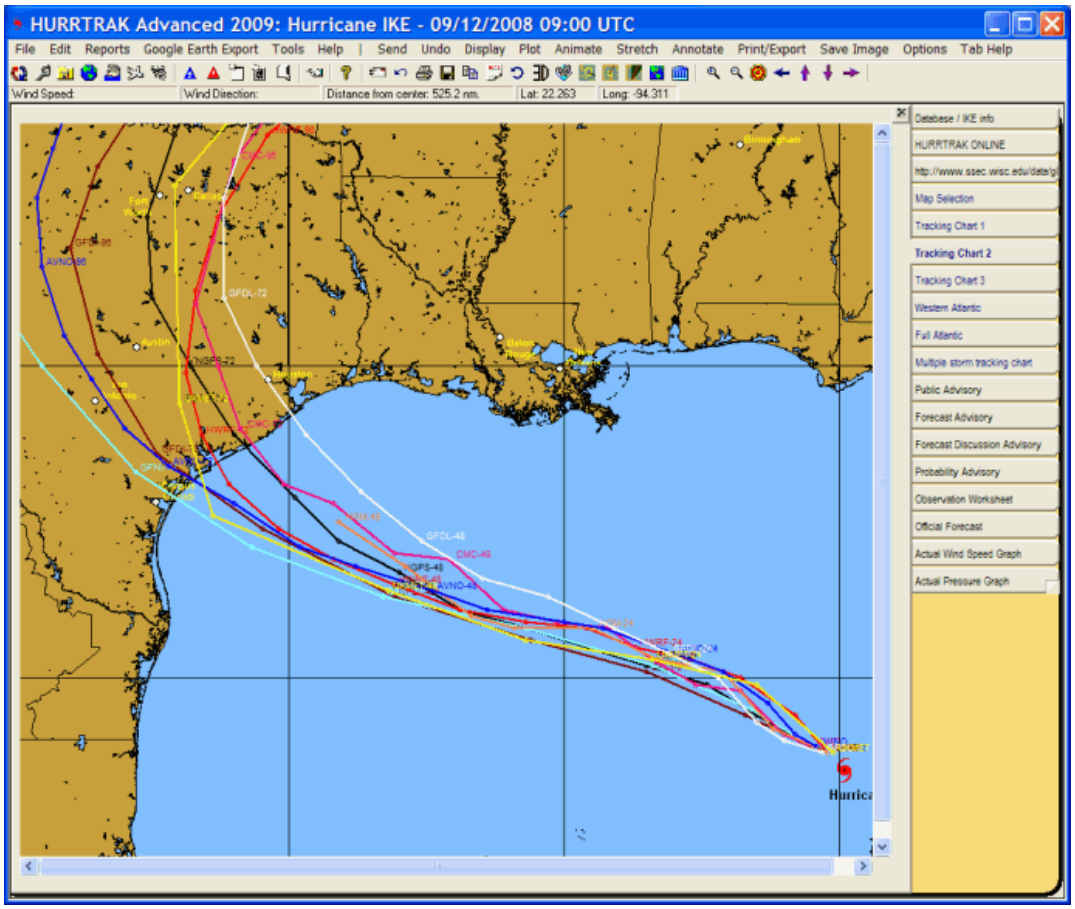


COUNTY THEMATIC



Some more information on the National Weather Services HPC can be found at http://www.hpc.ncep.noaa.gov/html/about2.shtml.

APPENDIX N: Hurricane Model Forecast



The HURRTRAK software, coupled with HURRTRAK ONLINE, allows the use to depict the latest available Hurricane Model Forecast. A complete discussion of the various hurricane models that the NHC utilizes can be found at:

http://www.nhc.noaa.gov/modelsummary.shtml

It is important to note that the user should always make plans based on the official NHC forecast and not on forecast model "raw" output.

APPENDIX NN: Google Earth Interface

Go to earth.google.com to download the software. The "Open Google Earth" function will not work without Google Earth being installed. We strongly suggest you learn how to use Google Earth and understand all of its capabilities. We will not be able to support your questions about Google Earth.

There are 2 methods in which HURRTRAK interfaces with Google Earth (GE).

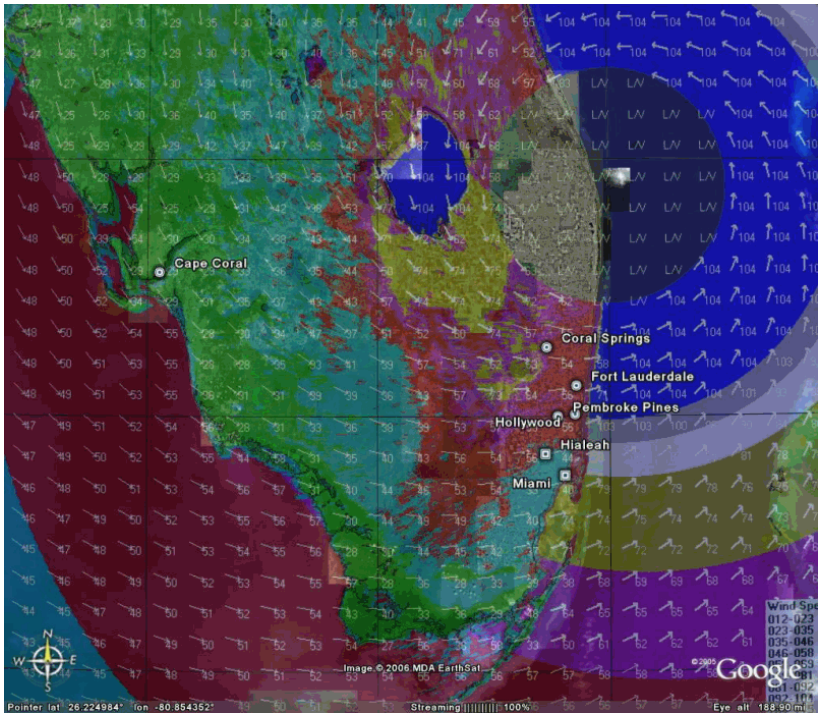
- Graphic Export
- KML language interface

Each method is described in more detail below.

Graphic Export:

The Hurrtrak system has the ability to export "ANY" graphic image that is currently being viewed within the system to a format that can then be viewed using Google Earth. When selected, Hurrtrak will automatically display the image on Google Earth without any other user key/mouse strokes needed. Depending on the image, land and sea areas are set to transparent, allowing the Google Earth maps to show through. Please keep in mind that the graphics will enlarge as you zoom in with Google Earth... i.e. the detail will remain constant.

An example of an exported image is shown below.



Export of wind pattern around Wilma

KML Export:

Definitely more powerful than Graphic Export is the KML method… In this case, the Hurrtrak system has the ability to export key hurricane tracking and analysis data to Google Earth via its native interface language called KML. Somewhat similar to a GIS type language, KML allows data to be presented many different ways,

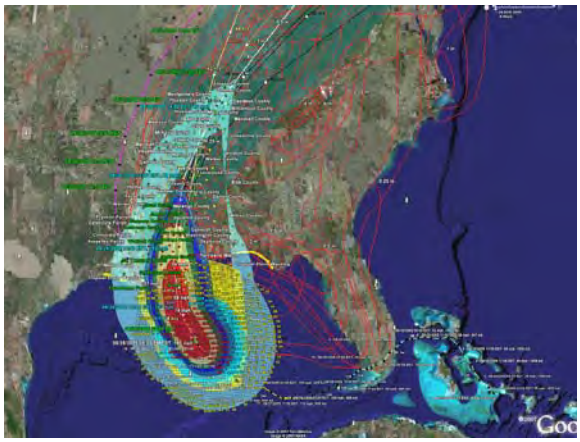
including a three-dimensional manner. The data types that are available for export from HURRTRAK to Google Earth are updated yearly and are shown on page 33.

There is one additional type of SLOSH export which is found in the SLOSHVIEW program

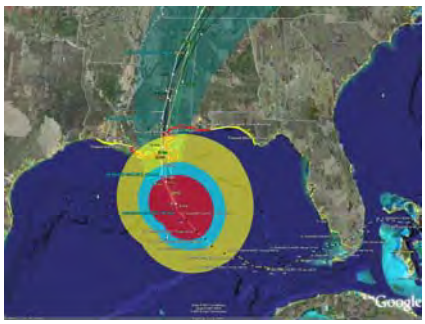
As indicated in the documentation of this function you have the options to Save, Email or Open the KML/KMZ files. A couple of things to consider.

1. If you plan on opening the file, make sure you are running the latest version of Google Earth.
2. Within the tracking system, the user has the ability to generate multiple KML files/layers with a single selection of "ALL SELECTED OUTPUT". The outputs that will be created are controlled within the General Options of User Preferences. Most users will select a subset of all of the possible outputs.
3. When exporting multiple layers at once, we suggest you deselect all of them initially in GE and then select the data you want to view. If you don't do this, you may be presented with something that looks like the image on the next page.
4. GE has animation controls which will allow you to control the animation characteristics.
5. When viewing SLOSH storm surge polygons on GE, make sure you do the following:
    a. Have the "Terrain" layer on (checked) in GE.
    b. In GE options, set the terrain quality to its max value.
    c. In GE options, set the terrain exaggeration to a value of 1.
    d. Zoom in as far as you can in order to analyze the data as the terrain data is not reflected at a low to medium zoom level. You may have to experiment with this.
    e. Turning 3D Buildings on in GE will create some interesting effects.
6. Learn Google Earth (it's not very difficult).

The following is an example of multiple (TOO MANY) KML layers on one image:



It is best to deselect all of the layers within GE first and then display only the ones you want to see together at the same time. See image below:



APPENDIX O: NHC Wind Radii Forecast Considerations

The National Hurricane Center's Forecast Advisory details the current and forecast wind radii for the area of 34, 50 and 64 knot winds. Since many of the functions of the system utilize this data, there are several considerations the user needs to be aware of.

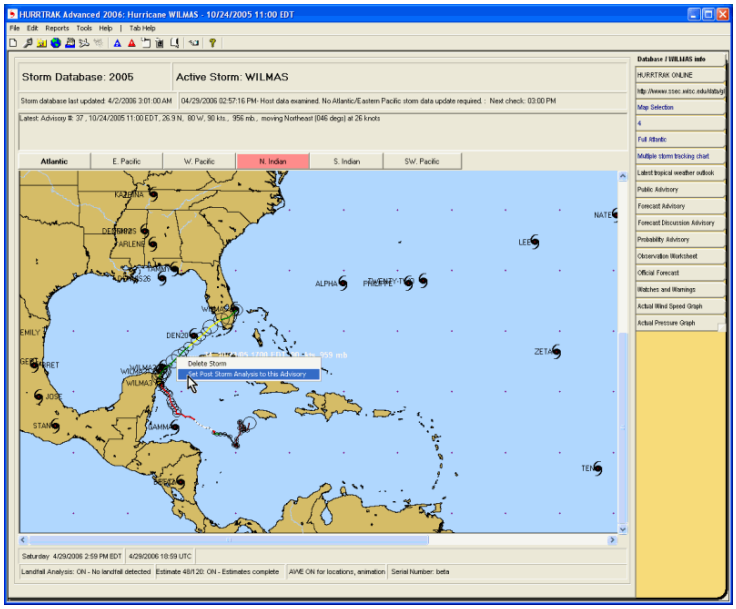
1. Due to the squally structure of a tropical system, the winds vary greatly in each quadrant. While a portion of a quadrant may be experiencing sustained hurricane force winds, other areas in that quadrant at the same radius may be sustaining much lower wind speeds.
2. The "observed" and forecast wind radii represent the largest radii of those winds in that quadrant. The reason for this is the same as indicated in #1.
3. The maximum winds and the radii winds being forecast represent sustained winds that are experienced from an open "ocean type" exposure. Due to the effects of friction, sustained surface winds over land are much less. Since the winds above the surface are not impacted as much by friction, land areas typically experience "forecasted" winds only during the passage of squalls… when these higher level winds are brought to the surface in the form of gusts.
4. While 12 and 24-hour forecast are quite good, the NHC average forecast error at 120 hours is over 370 nm. Care should be taken when utilizing forecast information beyond 24 hours.

APPENDIX OO: Interactive Chart Notes

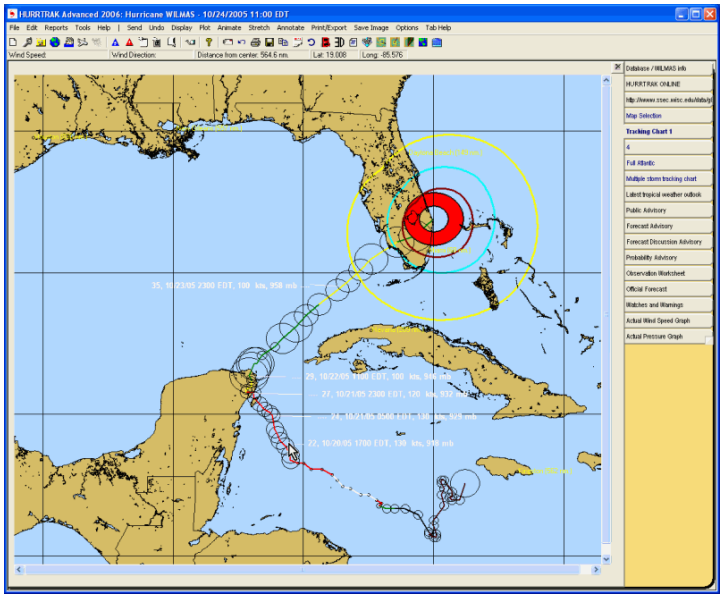
The Hurrtrak system, optionally, displays the Chart Notes or observation details directly on the tracking chart. The automatic display of the chart notes is controlled via the Plotting Options.

The user also can view these chart notes on the Database Tab and any TRACKING CHART TAB. As you pass over an observation point (not forecast point), the chart notes for that observation are displayed. The secondary function initiated by a “right click” of the mouse is different for each type of tab.

With the Database Tab, a “right click” over an observation allows you to set that advisory as the Post Storm Analysis point. If you happen to point at a storm, you can also delete the storm from the database.



While viewing one of the TRACKING CHART TABS, a “right click” will permanently place the chart notes onto the image. If you press the right button down, hold it down, while dragging your mouse to another location, and then letting go of the right button, the chart notes will display in that location. The image below shows how the chart notes were positioned away from the storm track.

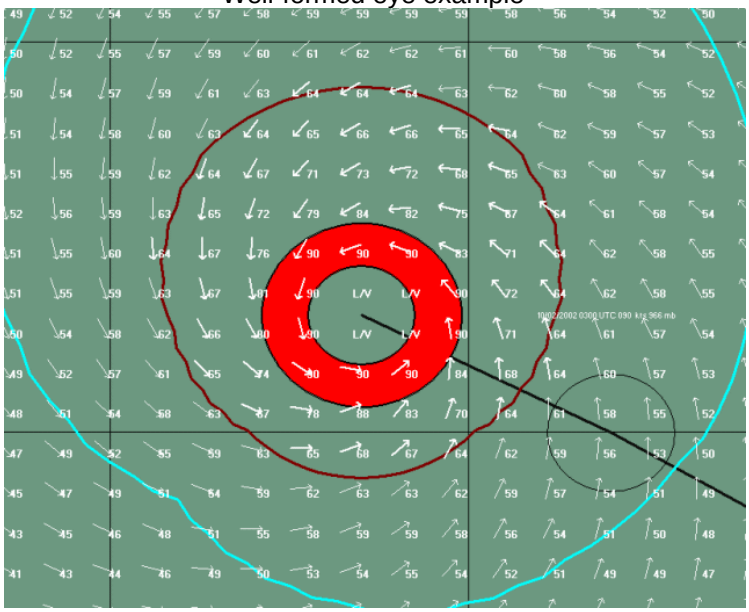


APPENDIX P: Depiction of storm's eye, eye wall and wind field

The Hurrtrak system depicts a storm's eye and eye wall (if they exists) as well as the areas of 34, 50 and 64 knot winds.

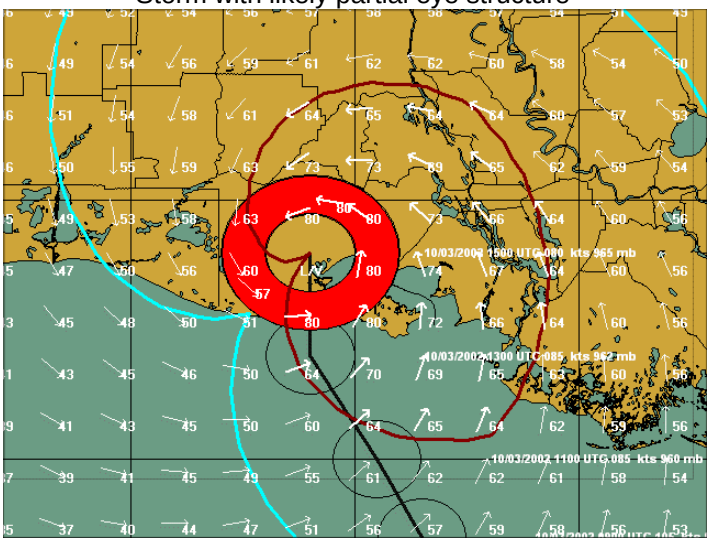
EYE/ EYE WALL:
If the storm has a well formed eye structure and is reported on the NHC Forecast Advisory, the system will use the reported eye diameter and draw a donut type structure that looks like the image below. The eye wall width is assumed to be 1/2 of the diameter of the eye. i.e. a 20 nm eye diameter is assumed to have an eye wall width of 10 nm. Maximum winds are assumed to be in the eye wall with light and variable winds in the eye.

Well-formed eye example



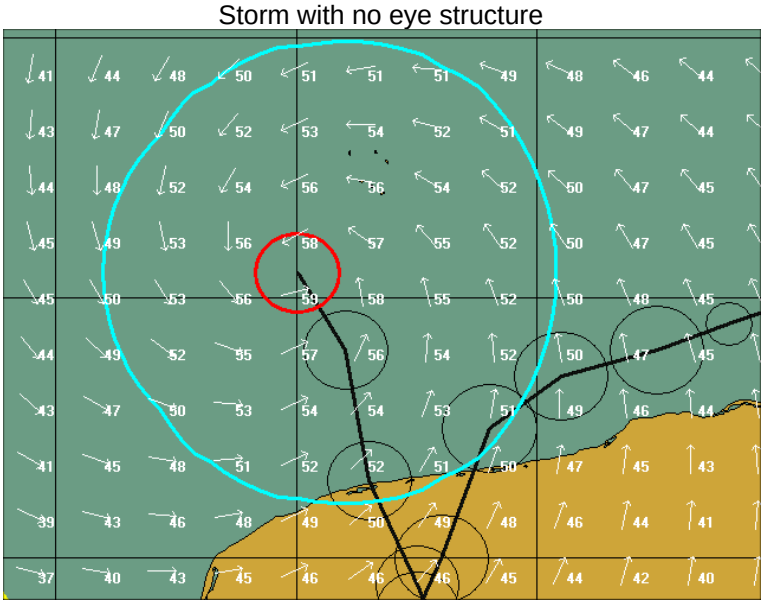
The Hurrtrak system does not depict partial eye walls, however it does show quadrants where lighter winds exist, even if an eye is reported. The example below shows what is likely to be a partial eye wall situation.

Storm with likely partial eye structure



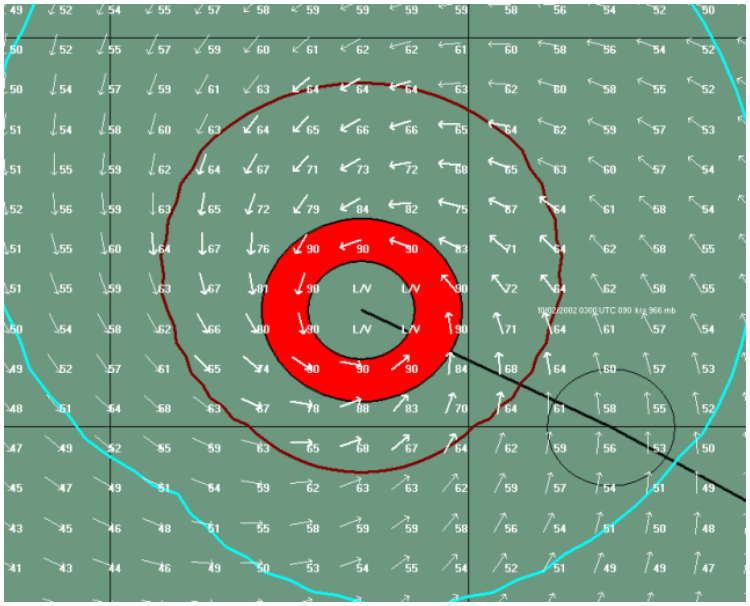
If the storm does not have an eye, the eye and eye wall width are set to 0 (via Hurrtrak Online). In this case, the system shows a small red circle indicating the center area of the storm. Maximum winds are assumed to be near the center of the storm

Storm with no eye structure

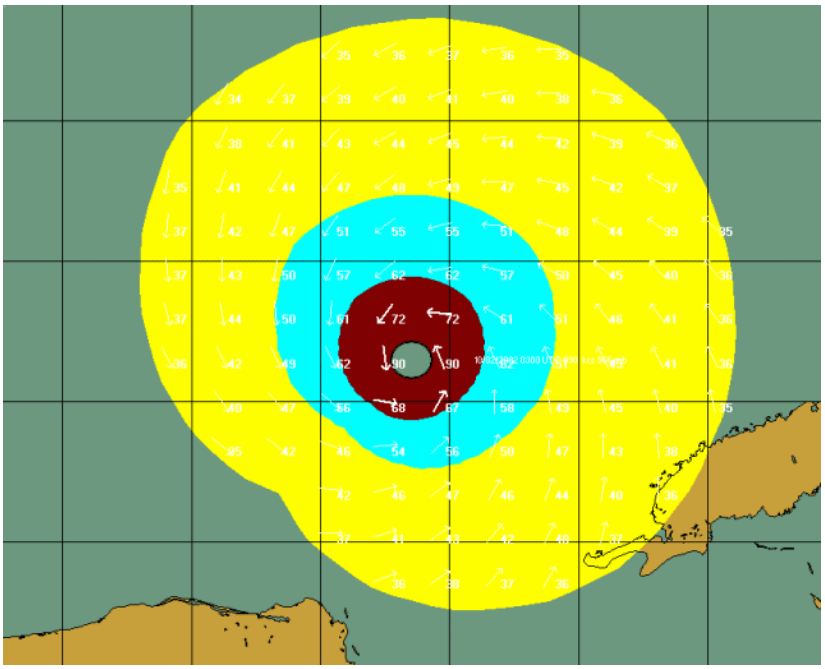


Note: Hurrtrak Online reports an eye under the following conditions.
1. It is reported on the NHC forecast advisory.
2. If it is not reported on the NHC forecast advisory but a storm has winds of 70 knots or greater, an eye diameter of 18 nm is assumed. This is to cover the situation where hurricane recon is not available for the storm, but it is likely to have an eye.

WIND FIELDS:
The 34, 50 and 64 knot winds areas are depicted based on the information in the NHC Forecast Advisory. See NHC Wind Radii Considerations for more information about the data represented in this advisory. The example below shows a 90 knot hurricane with the areas of 34, 50 and 64 knot winds depicted.

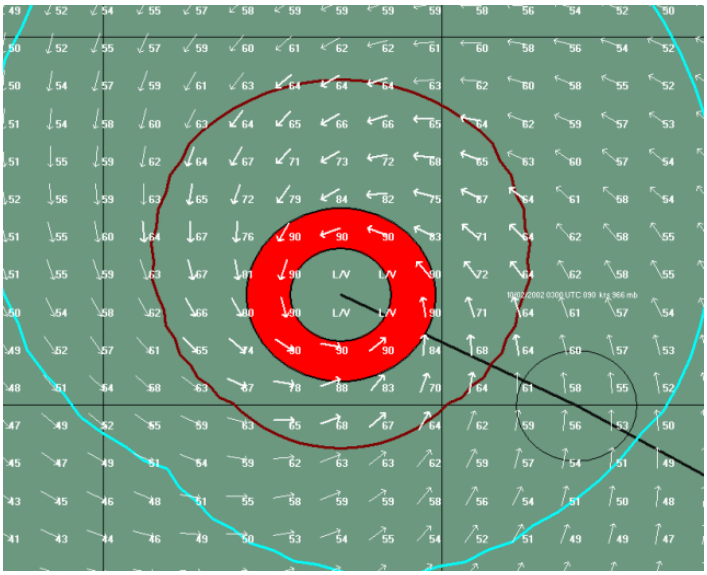


Plotting Options (wind circle vs. area):
The user also has the option, via Plotting Options, to depict the wind fields as shaded areas or not at all. The example below is an example of a storm with wind field shading.

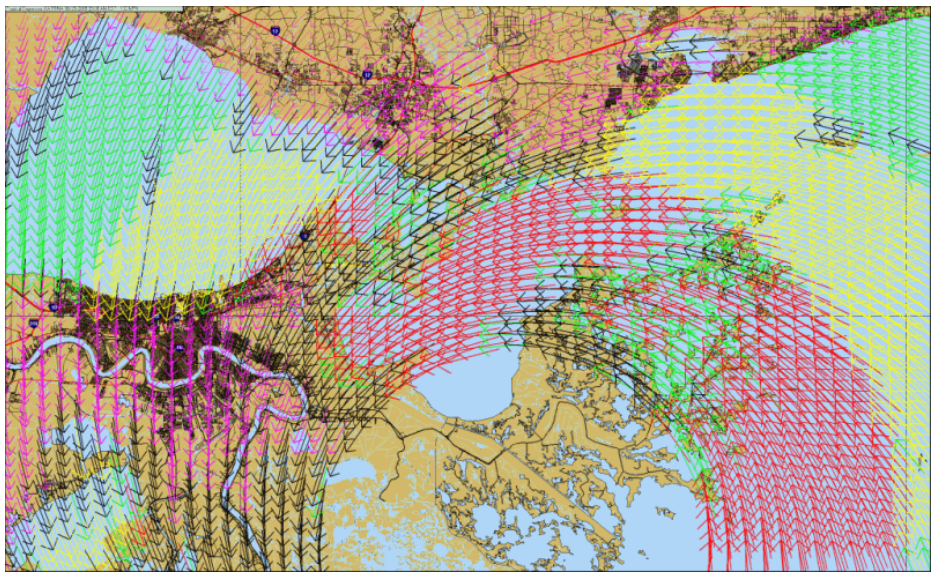


APPENDIX PP: Multi-Colored wind vector display

The Hurrtrak system has the ability to display wind “arrows” around a storm or present a multi-colored wind vector display. The standard wind arrow display on both static and during animation looks like the following:



The user can change the plotting and/or animation options, instead, to plot multi-colored wind vectors where the vector color and size represents the wind speed. See Plotting Options on page 84 and/or Animation Options on page 57 to view those user preferences. When choosing the multi-colored display, it is recommended that you increase the density of the arrow plot and, perhaps, decrease the arrow size. It all depends on the scale of map being used and the size of your screen display. An example of a vector display is shown below:



The color of the vector is controlled within the plotting user options.

APPENDIX Q: Advanced Wind Estimation

This function should be used with extreme care as it can lower the estimated wind speeds significantly. While we believe it produces more accurate results, it is highly dependent on accurate Land Cover Database information and correct user input. Like any good estimation calculation, it may, in some cases, underestimate the actual winds experienced. If you always want to overestimate wind speeds, do not use this feature. See considerations section at the end of this topic.

The National Hurricane Center's estimated maximum winds and wind field radii issued in their advisories are valid, generally, for open sea exposures only. They cannot factor local wind characteristics for inland areas. This is where Advanced Location Wind Estimation "comes in".

Advanced location wind estimation (AWE) is a function of HURRTRAK that applies a wind speed "correction factor" to the forecast/estimated wind speeds based on the local “site” characteristics. These include distance from open (ocean) exposures, types and density of vegetation and manmade structures, and elevation being analyzed. Established wind dynamics formulae are applied for the location... adjusting the estimated wind speeds (sustained and gusts) to account for frictional, exposure and height considerations of the location.

There are two methods of employing this capability.

Site/Location characteristics - With this option, the user specifies the characteristics of a specific location. This is useful when creating impact reports.

NLCD (National Land Cover Data) - This option allows the system to determine the characteristics of locations, zip codes and county area. This method is only available for US mainland locations.

All graphics that use AWE, such as wind pattern and wind arrows, utilize the NLCD information, while reports can use either. If there is no user entered information for a report location, the system will use the NLCD data.

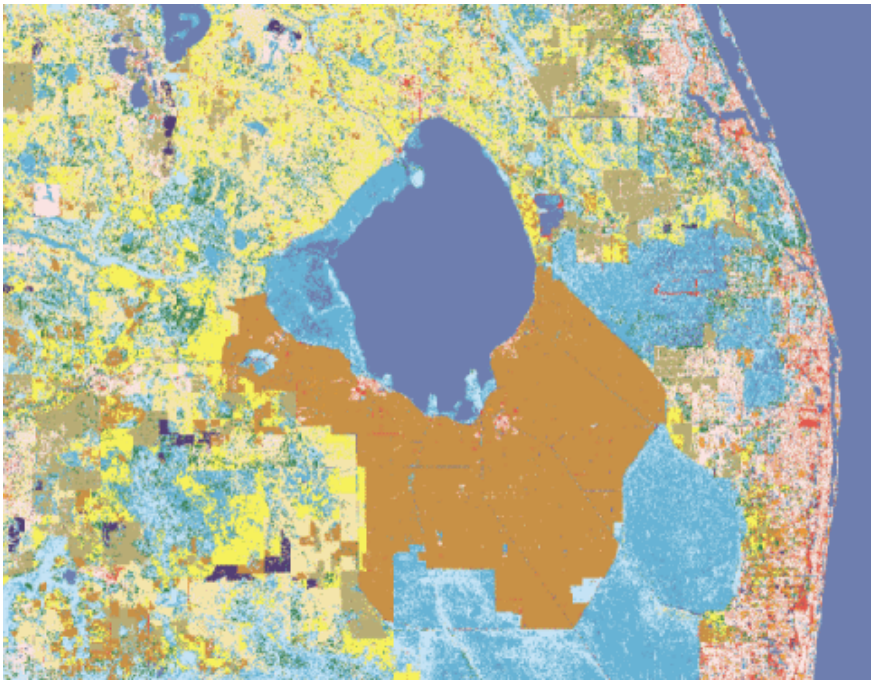
If you require the most accurate wind speed estimate reports possible, we recommend that you use the site/location method and enter the roughness index information for each of your locations. This can be a time-consuming exercise as it requires detailed knowledge of a locations surroundings and the ability to translate this into roughness index values.

We will describe each method below.

NLCD Method :

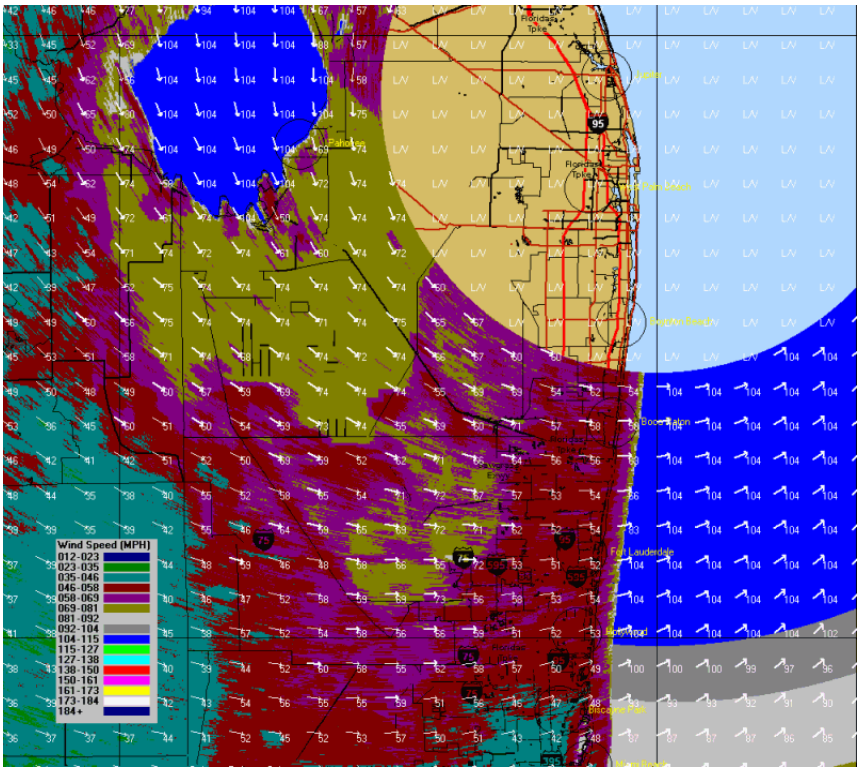
The NLCD Enhanced AWE has three important changes over the original Site/Location characteristics method.

The NLCD database (see image below) has land usage information on every state. An example of the land usage graphic for part of S. Florida is shown below. It shows the urban land usage of the Florida east coast, as well as the Everglades and Crop areas. With this information, we can estimate the "roughness index" (friction) for any location by direction of wind. i.e. an East wind into Palm Beach has a different "roughness index" than a west wind.



The system then considers these factors to adjust the “raw” derived wind speed (as determined by the NHC forecast advisory) for this site. Typically, the adjusted wind speeds are considerably lower than the “raw” values. This function affects the forecast and actual location wind impact reports, as well as the summary report.

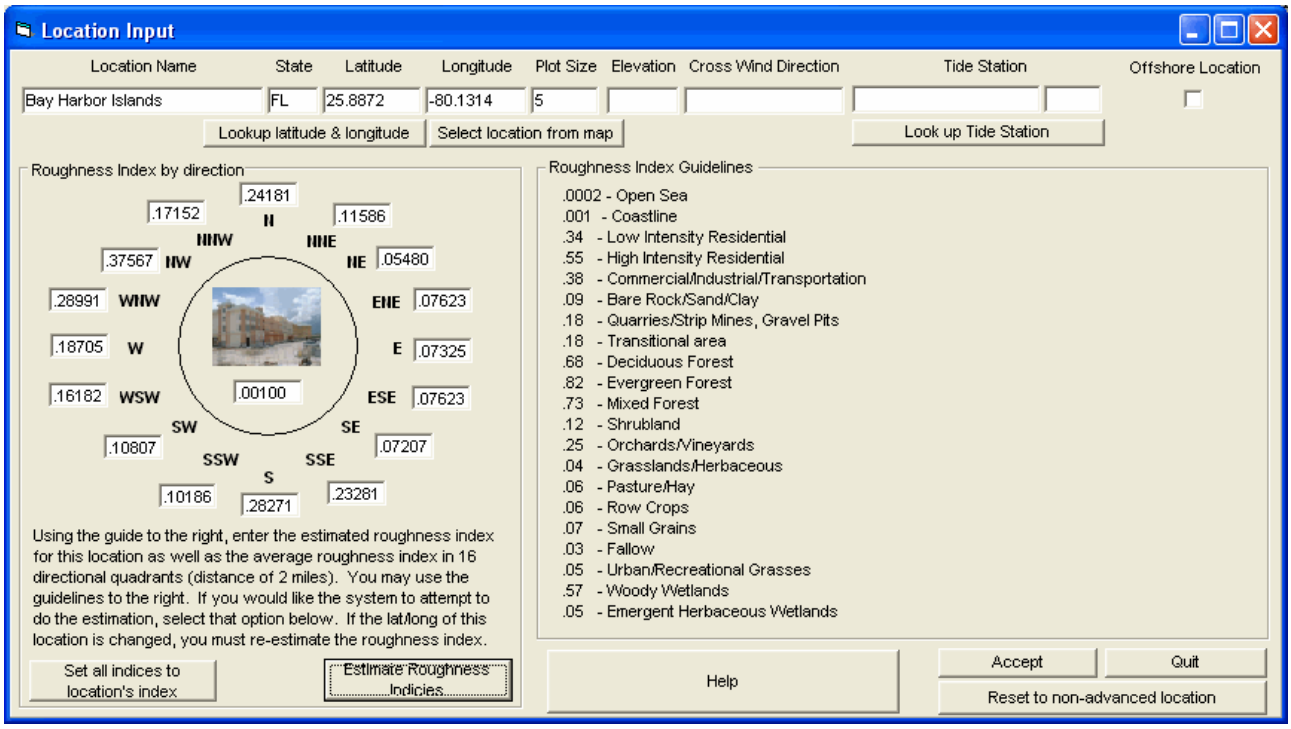
This type of information allows us to create graphics, such as the wind pattern shown below.



Site/Location Characteristics Method:

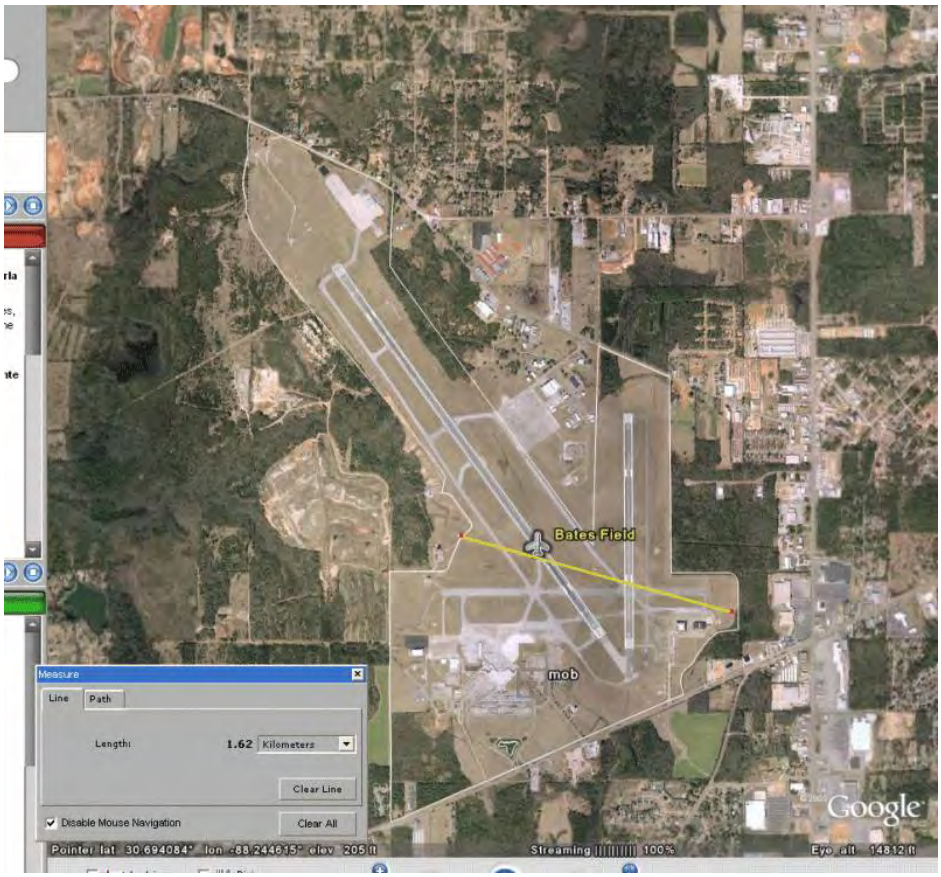
For the most accurate wind estimation reports possible and for areas outside of the US, the user can enter site/location characteristics within the Location Maintenance portion of the System Setup function.

An example of the advanced location data entry screen is shown below:



In this example, we have defined a location, Bay Harbor Island, FL. Based on the site characteristics, we have entered the average roughness indices, for 16 compass directions. We used a distance of about 2 KM "upstream" for each direction to help determine the average RI. This type of analysis requires a good knowledge of your sites and may require some experimentation as real data is analyzed. i.e., if the system is always underestimating easterly winds, your RI values may be too high in that direction.

Many users use aerial images and local knowledge to help determine the best values. The image below is for an airport location as shown on Google Earth. In order to determine a point location's surrounding RI values, these kinds of tools are invaluable.



If your requirements are not quite as strict, the NLCD method does provide good results and you do not need this type of site analysis.

Advanced Wind Estimation's effect on reports:

When creating a wind impact location report, the system will utilize the user-entered information, if available. If no information was entered, it will use the NCLD database data to estimate the friction (RI) values instead.

The following is an impact summary report for Hurricane Wilma in 2005. All of the locations used the NLCD database information.

General							
Location	ST	Max Wind AWE (mph)	Max Wind Non AWE (mph)	Max Gust AWE (mph)	Date/Time of Max Wind EST	CPA	D
Pahokee	FL	99	121	129	Monday: 10/24/2005 11:00	25	N
Fort Pierce	FL	79	108	103	Monday: 10/24/2005 11:00	43	N
Boca Raton	FL	70	118	92	Monday: 10/24/2005 07:30	23	N
Key Biscayne	FL	70	118	91	Monday: 10/24/2005 10:00	54	N
Fort Myers	FL	67	125	87	Monday: 10/24/2005 06:30	46	N
Key West	FL	67	119	87	Monday: 10/24/2005 05:00	73	N
West Palm Beach	FL	67	115	87	Monday: 10/24/2005 08:00	2	N
Boynton Beach	FL	66	115	86	Monday: 10/24/2005 08:00	16	N
Naples	FL	66	127	85	Monday: 10/24/2005 05:00	16	N
Miami Beach	FL	65	118	85	Monday: 10/24/2005 07:30	50	N
Stuart	FL	65	109	84	Monday: 10/24/2005 12:30	25	N
Jupiter	FL	64	112	83	Monday: 10/24/2005 12:30	6	N
Perrine	FL	63	121	82	Monday: 10/24/2005 07:00	53	N
Homestead	FL	62	121	81	Monday: 10/24/2005 08:00	59	N
Okeechobee	FL	62	115	81	Monday: 10/24/2005 08:00	53	N
Fort Lauderdale	FL	61	118	80	Monday: 10/24/2005 07:30	32	N
Hollywood	FL	61	118	79	Monday: 10/24/2005 07:30	38	N
Biscayne Park	FL	60	118	78	Monday: 10/24/2005 07:00	44	N
Marathon	FL	53	74	69	Monday: 10/24/2005 09:30	91	N
Key Largo	FL	48	80	62	Monday: 10/24/2005 09:30	84	N

The Max Wind AWE column represents the maximum sustained winds using Advanced Wind Estimation; the next column shows the "uncorrected" wind speeds; and the next column shows the max gusts using AWE. As you can see, the impact of AWE on the report values is significant. Sustained wind speeds along the SE coast of Florida, where the land usage is most dense, have been decreased about 40-50% while the wind speed adjustment in more exposed areas, is much less.

One interesting location on this report is Pahokee. It is located on the SE shore of Lake Okeechobee and thus, is more exposed to a NW wind off the lake. The detail hourly report (below) verifies that, indeed, their highest winds were likely on the back side of the storm when the winds switched to the NW.

Pahokee (AWE), FL profile - Hurricane WILMA									
Date / Time	Time of day	Wind Speed (mph)	Wind Gusts (mph)	Wind Direction (degs.)		Distance to 39 mph winds	Distance to 58 mph winds	Distance to 74 mph winds	Distance to center
Monday: 10/24/2005 00:30 EDT		026	037	113	↖		0084 mi.	0153 mi.	0228 mi.
Monday: 10/24/2005 01:00 EDT		027	039	113	↖		0076 mi.	0145 mi.	0220 mi.
Monday: 10/24/2005 01:30 EDT		028	041	113	↖		0066 mi.	0135 mi.	0210 mi.
Monday: 10/24/2005 02:00 EDT		030	043	113	↖		0054 mi.	0123 mi.	0198 mi.
Monday: 10/24/2005 02:30 EDT		031	042	113	↖		0044 mi.	0113 mi.	0188 mi.
Monday: 10/24/2005 03:00 EDT		033	044	113	↖		0033 mi.	0102 mi.	0177 mi.
Monday: 10/24/2005 03:30 EDT		034	046	113	↖		0024 mi.	0090 mi.	0168 mi.
Monday: 10/24/2005 04:00 EDT		035	048	114	↖		0015 mi.	0078 mi.	0159 mi.
Monday: 10/24/2005 04:30 EDT		037	049	114	↖		0006 mi.	0066 mi.	0150 mi.
Monday: 10/24/2005 05:00 EDT		038	051	115	↖			0054 mi.	0140 mi.
Monday: 10/24/2005 05:30 EDT		041	054	114	↖			0036 mi.	0122 mi.
Monday: 10/24/2005 06:00 EDT		045	058	112	←			0017 mi.	0104 mi.
Monday: 10/24/2005 06:30 EDT		048	062	110	←				0085 mi.
Monday: 10/24/2005 07:00 EDT		078	101	112	←				0067 mi.
Monday: 10/24/2005 07:30 EDT		076	099	113	↖				0058 mi.
Monday: 10/24/2005 08:00 EDT		074	096	111	←				0048 mi.
Monday: 10/24/2005 08:30 EDT		072	094	105	←				0041 mi.
Monday: 10/24/2005 09:00 EDT		000	000	000					0036 mi.
Monday: 10/24/2005 09:30 EDT		000	000	000					0028 mi.
Monday: 10/24/2005 10:00 EDT		000	000	000					0025 mi.
Monday: 10/24/2005 10:30 EDT		000	000	000					0031 mi.
Monday: 10/24/2005 11:00 EDT		099	129	344	↓				0041 mi.
Monday: 10/24/2005 11:30 EDT		099	129	328	↘				0055 mi.
Monday: 10/24/2005 12:00 EDT		081	105	319	↘				0069 mi.
Monday: 10/24/2005 12:30 EDT		069	089	316	↘			0005 mi.	0083 mi.
Monday: 10/24/2005 13:00 EDT		062	081	315	↘			0018 mi.	0097 mi.
Monday: 10/24/2005 13:30 EDT		054	071	304	↘		0006 mi.	0038 mi.	0119 mi.

APPENDIX QA: Advanced Wind Estimation Considerations

We are pleased with the performance of Advanced Wind Estimation (AWE), but we feel that is important to mention a few things about the accuracy of wind estimation in general and advanced wind estimation specifically. In the documentation and helps, we try to communicate that AWE does a good job of estimating sustained winds in Cat 3 and below storms and also outside of the eye wall. The eye wall is an extremely turbulent region where violent up and down motions of air will bring very strong winds aloft down to the surface.. thus reducing the "normal" effect of friction on wind speed.

In Cat 4 and 5 storms, like Charley and Katrina, we suggest that you do not rely solely on AWE for estimating winds in the eye wall of this hurricane. We cannot afford to underestimate the winds in these violent storms near the center. To understand this better, generally, a perfect site specific wind forecast (location impact report) depends on several things to occur.

1. A perfect forecast of storm track, storm strength and 34, 50 and 64 wind radii.
2. A homogeneous wind field around the storm. i.e. no eye wall vortices, local effects, and squally areas of higher winds, etc.
3. For AWE, a perfectly-analyzed location with exact roughness index figures in all quadrants.

Let's address each one.

1. It is obvious we do not have item #1. While NHC forecast are very good, especially 12 and 24 hours in advance, the average error is still in the 80-90nm range at 24 hours. That aside, forecasting the exact storm strength and wind radii has proven to be nearly impossible.

2. As everyone who experienced hurricanes knows, an homogeneous storm does not exist in nature. Hurricane Frances, for example, caused much higher winds in NE Florida than was expected, due to a detached persistent area of squalls that prevailed in this region, even though the storm center was near the Florida West Coast. The region inside the eye wall can be a violent area with vortices and other local effects that no software can predict.

3. While we have a good feel for the type of land usage around a location, without a detailed site by site analysis, it is not exact. AWE uses this information to adjust the raw extrapolated winds downward to a more realistic level.

Due to these three factors, Hurrtrak (and any other software) is not able to provide EXACT wind speed forecast.. thus the use of the word "estimate." While AWE is a huge improvement, it is not a panacea.

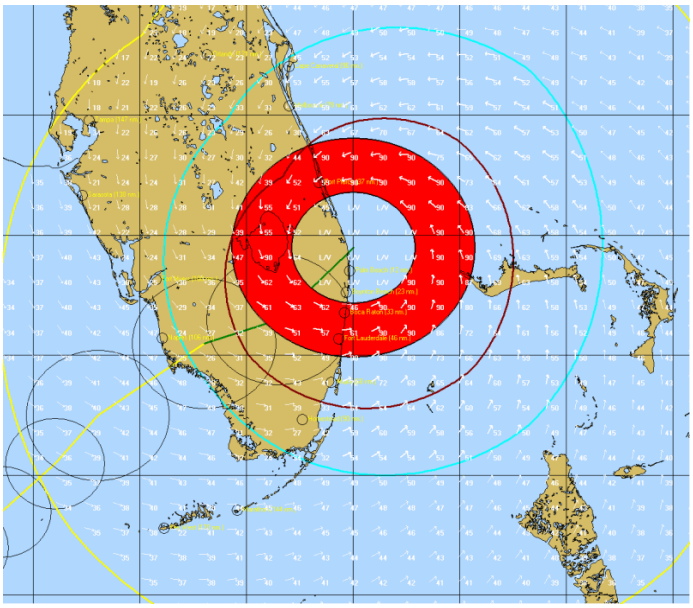
Specific to AWE, because it lowers the location's wind speed to a more realistic level, it is important to understand that it WILL sometimes UNDERESTIMATE wind speed forecast for a location (as in a location impact report), something that the standard method rarely did. This may be suitable for some customers, while other customers might want to make decisions based on the higher-end forecast generated from the standard (non-AWE) method. Remember, the wind impact reports estimate SUSTAINED (2-minute average) wind speeds at an observation point 10 meters above ground level. Wind gusts can be much higher and average about 30-50% greater than the average wind speed.

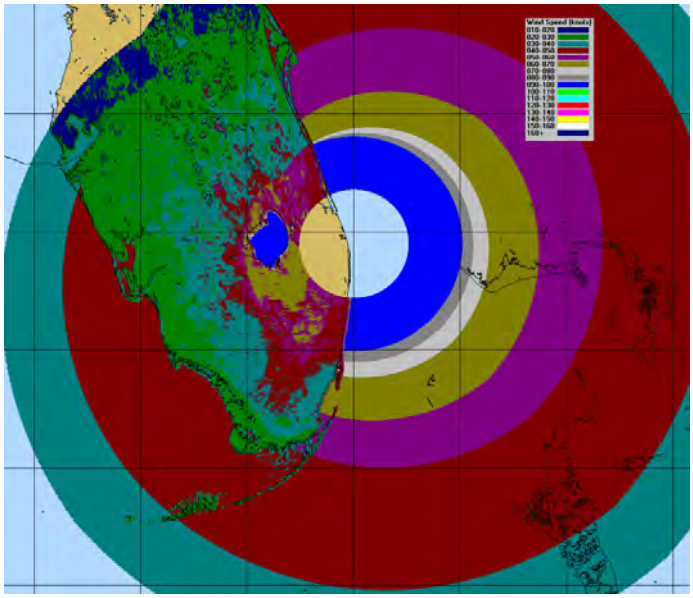
Finally, If you choose to use AWE, I would highly recommend that you do not use AWE for the county or zip code report. This is because AWE is site specific, and a zip code/county area average is not representative of a single point. Imagine a county that is 5% coastline and 95% pine forest. The pine forecast friction factors will

dominate bringing the calculation of the wind level down to an unrealistic level for the coastal location. The only place you can use AWE on the zip and county report with some confidence is with areas that are entirely inland and uniform in nature.

APPENDIX QQ: Wind Pattern Display

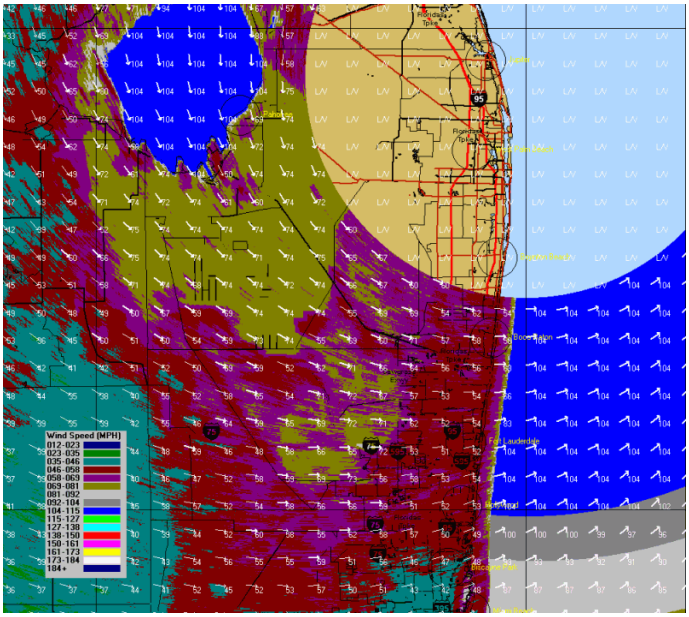
One of the capabilities of the HURRTRAK system is to display an actual or forecast image of the estimated winds across a geographic region. This display is unique because, unlike a wind arrow or wind vector display, this image is a solid pattern that covers every “pixel” location on a map. This is best described with the following two graphics. The first one shows wind arrows around a storm. The second image is the same area described with the “wind pattern” display.





As you can see, the second image provides much more detail than the first. This kind of detail, using Advanced Wind Estimation, does come with a cost… processing time. If not using the pre-processed RI files, depending on screen size, the rendering of this image may take 20 minutes or longer. Fortunately, if you download the RI files, the rendering time is reduced to less than a minute. You can find more about the Processed RI files on the topic of Plotting Options on page 84.

The great advantage of the wind pattern display is that “rougher” areas that typically reduce sustained winds, are easily depicted. For example, on the image below, you can see the higher winds over and leeside of Lake Okeechobee with lower winds over the metro areas of Broward, Palm Beach and Dade counties.



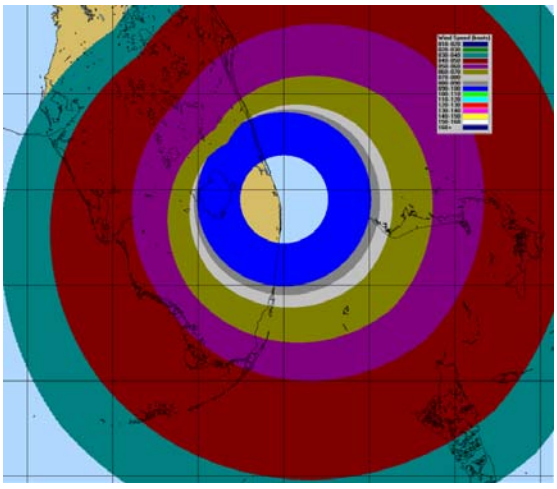
The wind pattern display is available for selection from any tracking chart.

To view a forecast wind pattern, the user must first select the PLOT- Forecast Position option from the Map Select Tab. Once the forecast plot is displayed, Display- Wind Pattern can then be selected from the menu.

Wind Pattern Animation:

- The user can also select to create an animated wind pattern. This may take very long because multiple animation frames are being created. If you are going to use this function it is imperative that you download the processed RI files mentioned on the prior page. You can find our more about the Processed RI files on the topic of Plotting Options.
- After the wind pattern animation is created, it is not saved unless you select the Save to Animated GIF option. It can then be redisplayed using MS Internet Explorer or some other animated GIF viewer.

One final note… if using EMPRO, or AWE is not selected, the resulting Wind Pattern image plots much faster, but does not show the effects of friction on the sustained wind levels. See image below:



APPENDIX R: Risk Alert

Alert Description	Value	
Wind Probability	75	
Wind Probability Tendency	11	
Direction of Movement	9	
Maximum Wind Speed Predicted	43	
Hours till arrival of 39 mph winds	22	
Hours till arrival of Max winds	24	
Forecast Rainfall (3 day total)	11.75 "	

The Risk Alert section of the Risk/Impact Tab is designed to quickly analyze an approaching storm's critical risk factors to the user's base location. There are 7 separate factors represented. It is important to note that not all factors should be treated equally. For example, a situation where a location has a 100-percent chance of getting hit by a tropical storm in the next 5 hours may appear to have more red risk factors than a situation where you have a 40-percent chance of getting hit by a Category 4 storm in the next 24 hours. The second situation represents a much higher risk!

The risk factors are...

Wind Probability - This is the probability that the base location will experience a 50 knot (58 mph) wind speed. The colors equate to the following probability values:
Red- 33+
Orange- 22- 32
Yellow- 11 –21
Green- 0-10

Wind Probability Tendency- This is the change in wind probability, as defined above, from the prior advisory. The colors equate to the following probability values:
Red- 11+
Orange- 4-10
Yellow- -4 - +4
Green- <-4

Direction of Movement - If the storm is within 600 nm of the base location, this represents the deviation of the storm's current motion from the compass angle of a direct approach. For example, if a storm is heading at right angles to a direct approach, this value would be 90, if moving in the opposite direction, this value would be 180. The colors equate to the following values:
Red- 0 – 22
Yellow- 23- 45
Green- 46+

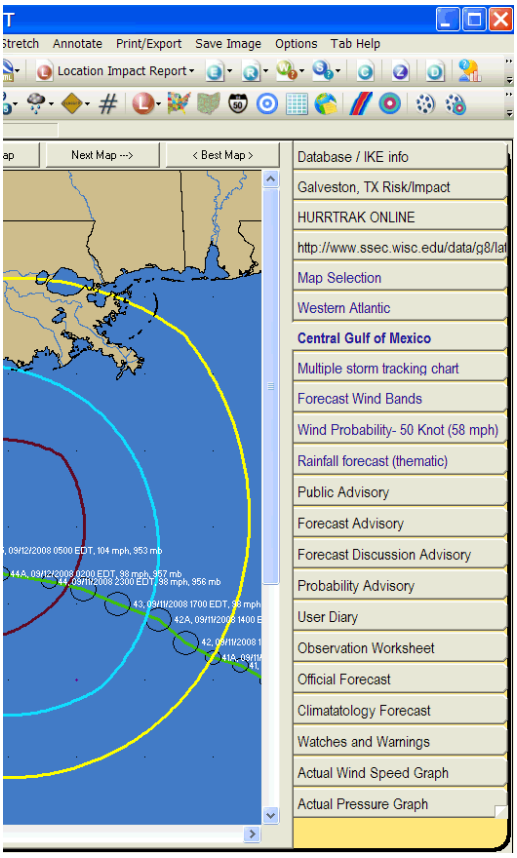
Maximum Wind Speed Predicted - This represents the maximum wind speed forecast (knots) for the base location. The colors equate to the following values:
Red- 100+
Orange- 65 – 99
Yellow- 36 – 64
Green- < 36

Hours until arrival of 34 knot winds - This represents the number of hours before the first 34 knot winds are expected. The colors equate to the following values:
Red- 0 - 23 hours
Yellow- 24 - 48 hours
Green- > 48 hours

Hours until arrival of maximum winds - This represents the number of hours before the maximum winds are expected. The colors equate to the following values:
Red- 0 - 23 hours
Yellow- 24 - 48 hours
Green- > 48 hours

Forecast Rainfall- This total amount of rain expected at the base location over the next 72 hours. The colors equate to the following probability values:
Red- 5.00+”
Orange- 3.00”- 5.00”
Yellow- .76 – 3.00”
Green- <.75”

APPENDIX S: User Interface Considerations



The "tabstyle" user interface allows the user to access data faster, as well as making the system much easier to use.

There are a few items, however, that need to be kept in mind while using this system interface.

1. **Since a lot of information is being created when the system is initiated, startup time is a bit longer than most applications. The "rewards" of waiting is in the time you save after the system is initialized.**

2. **Tab setup can be done via the General Options. This allows the user to disable tabs, move the tab labels, and otherwise personalize their preferences.**

3. **To CLOSE a tab, select the small X at the upper right hand corner of the tab area. Not all tabs are "closable".**

4. **The selection of a tab controls what toolbar commands are available. See the Toolbar topic on the next page.**

APPENDIX T: Tool Bars

The Hurrtrak System includes extensive use of Tool/Command bars. They are in integral part of the system and allow users to complete their tasks quicker.

In the main tracking program, there are 2 rows of toolbars... the first row displays functions that are not dependent on which tab/function is being displayed. They include things like Setup System/user preferences, Open Database, Open Storm, Reports and many others.

The 2nd toolbar row ARE functions that are relevant only to the displayed tab. So if you are on a text tab, like Public Advisory, only buttons related to that type of tab are shown (Email, Email Outbox functions, print, save, copy, font).

If you are on a tracking map tab many more buttons become available.

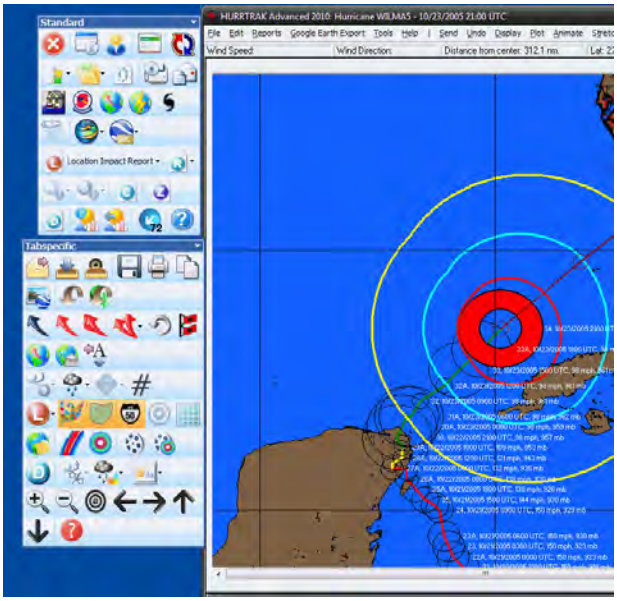
All of the buttons ”offer” tooltip explanations of what they do by simply ”floating” your mouse icon over the icon. This is the best way to learn what they do.

As mentioned in the Setup Application Appearance topic on page 95 you can also customize the size and color of the toolbars.

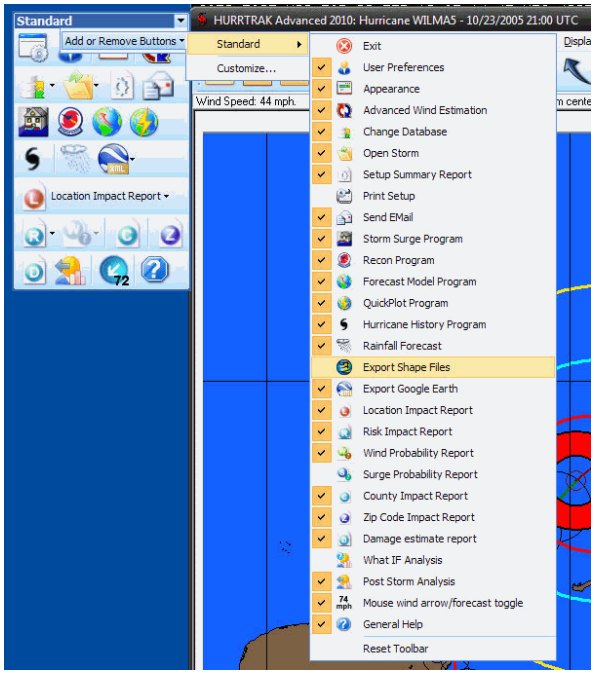
Data Layering: On the tracking map type tabs there is a group of tool bar functions that are designed to be set ON or OFF... i.e. switched/pressed down or up.

This allows the user to create a tracking map with the features (layers) desired and easily modify what is plotted on the tracking map without having to do multiple ”UNDOs”.

Toolbar Advanced Topics:
The user has the ability to move/resize the toolbars as well as customize them. By ”grabbing’ the toolbar you can move it to another portion of the desktop to give you a view similar to the following.



You can also, customize the command that will appear, the icon image, descriptions and look/feel by selecting the toolbar options at the right end of the toolbar. This is only recommended for advanced users familiar with these type of functions. If you do change them and want to go back to the original settings, there is a ”reset” toolbar option within this function, which will reset them to the install defaults.



Most of the Toolbar functions are duplicated menu bar functions… with 2 important exceptions.

Add to Email Outbox – This option adds the current image to the Email outbox.

View Email Outbox – This option views the contents of the Email outbox and optionally allows the user to Email them.

APPENDIX T1: Default vs. Hurrtrak Online Database

The system has two database variables defined.

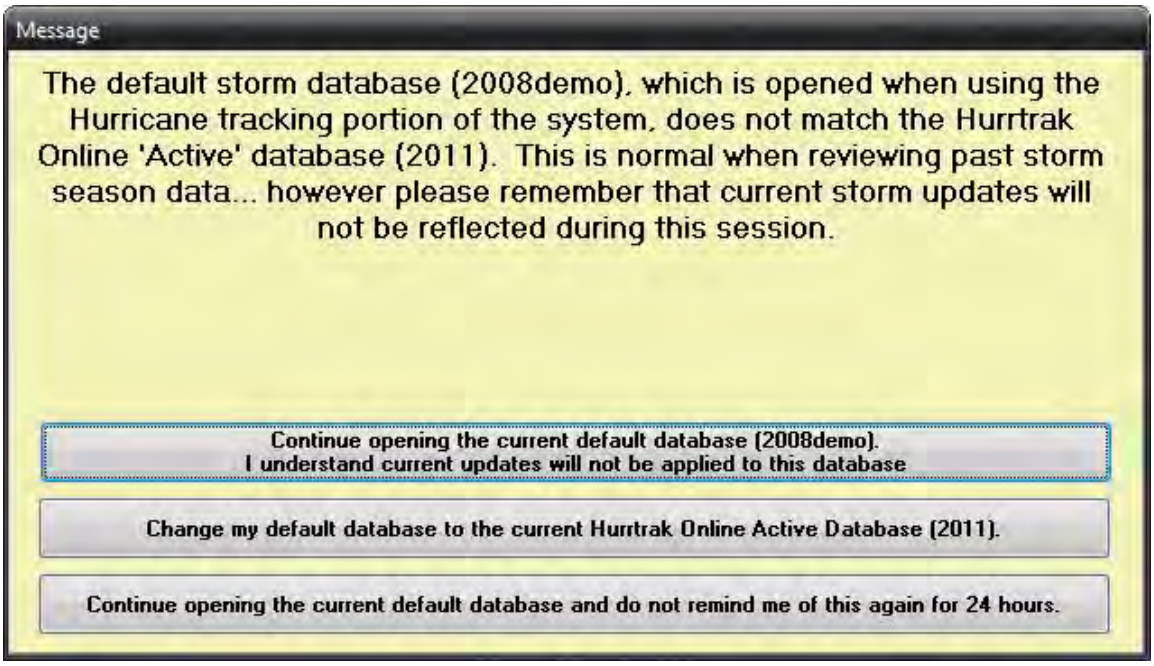
- Default Storm Database: This is the database that the system will open when using the Hurricane Tracking modules of the system.. This also includes the QuickPlot program. This option is set via the FILE menu option of Hurrtrak or in the System Setup portion of the system.

- Active Hurrtrak Online Database: This is the database that Hurrtrak Online will update with current data or past storm year's data you may manually select from the Hurrtrak Online Tab. This option is set in the Hurrtrak Online options.

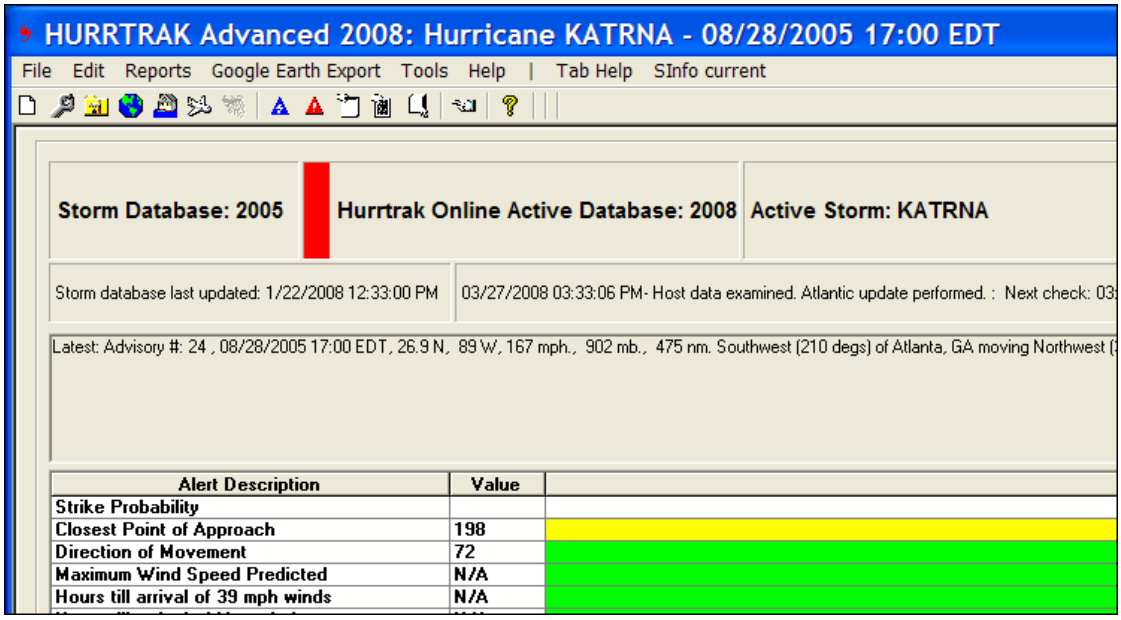
The value of these fields will allow for several situations.

1. When the default and Hurrtrak Online databases match, the system will not notify the user. This is considered the "normal" operating mode.

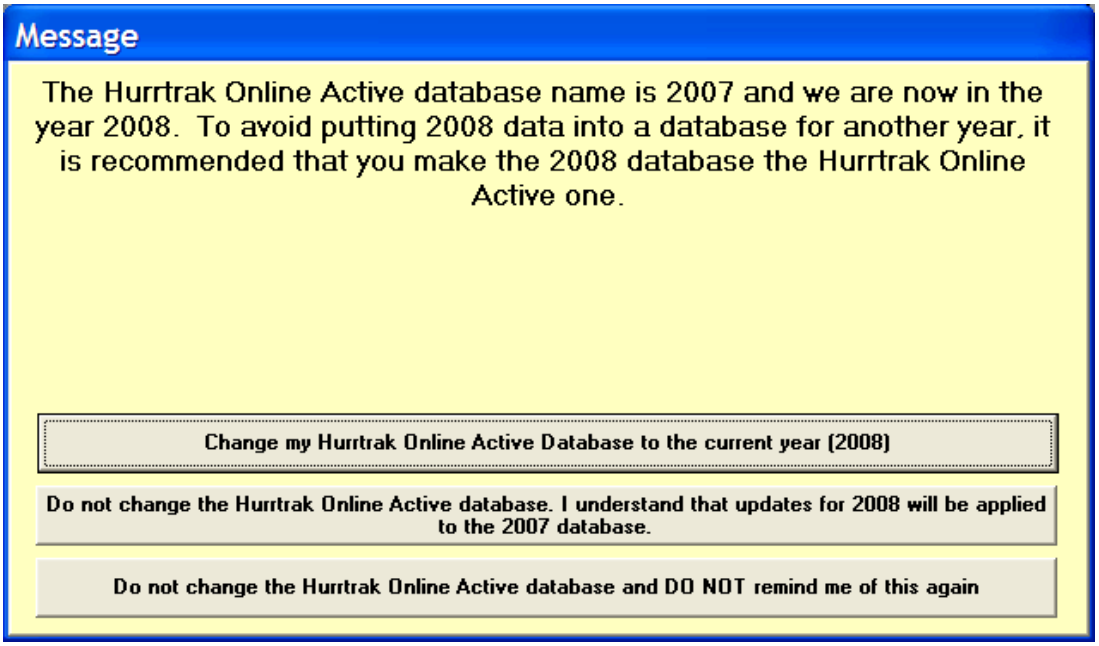
2. When the default and Hurrtrak Online databases do not match, the system will present the user with an opening message informing them of this situation and providing options to continue, change the default database, or disable this warning message for 24 hours. Be aware that if you choose to continue in this condition, any storm data coming in from Hurrtrak Online will not be reflected during the session. This includes the notices that indicate new storm data has arrived for a storm.


Message
The default storm database (2008demo), which is opened when using the Hurricane tracking portion of the system, does not match the Hurrtrak Online 'Active' database (2011). This is normal when reviewing past storm season data... however please remember that current storm updates will not be reflected during this session.
Continue opening the current default database (2008demo).
I understand current updates will not be applied to this database
Change my default database to the current Hurrtrak Online Active Database (2011).
Continue opening the current default database and do not remind me of this again for 24 hours.

In addition, if you continue with a non-current database, the main database tab will show a red "flag" next to the Hurrtrak Online database name field. This serves as a reminder.


HURRTRAK Advanced 2008: Hurricane KATRNA - 08/28/2005 17:00 EDT
File Edit Reports Google Earth Export Tools Help | Tab Help SInfo current
Storm Database: 2005
Hurrtrak Online Active Database: 2008
Active Storm: KATRNA
Storm database last updated: 1/22/2008 12:33:00 PM
03/27/2008 03:33:06 PM- Host data examined. Atlantic update performed. : Next check: 03
Latest: Advisory #: 24 , 08/28/2005 17:00 EDT, 26.9 N, 89 W, 167 mph., 902 mb., 475 nm. Southwest (210 degs) of Atlanta, GA moving Northwest
Alert Description
Value
Strike Probability
Closest Point of Approach
198
Direction of Movement
72
Maximum Wind Speed Predicted
N/A
Hours till arrival of 39 mph winds
N/A

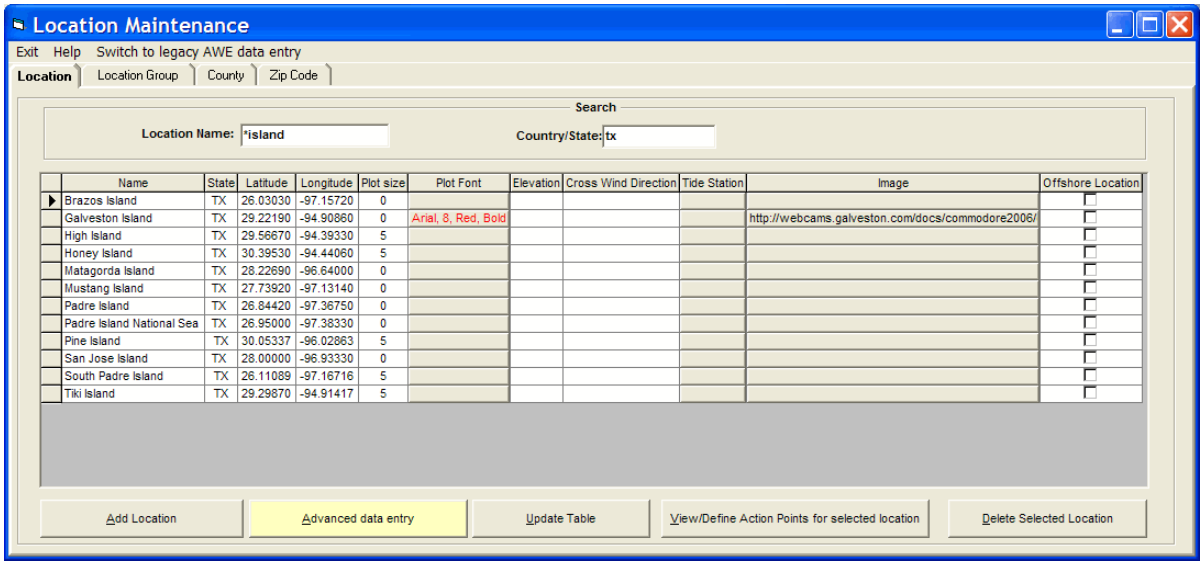
3. Finally, if the Active Hurrtrak Online Database is not in the current year, the system will warn the user when opening the main tracking program of this condition and provide the option of changing the Active database to the current year. This should reduce the chances that data from one year will be stored into the wrong database.


Message
The Hurrtrak Online Active database name is 2007 and we are now in the year 2008. To avoid putting 2008 data into a database for another year, it is recommended that you make the 2008 database the Hurrtrak Online Active one.
Change my Hurrtrak Online Active Database to the current year (2008)
Do not change the Hurrtrak Online Active database. I understand that updates for 2008 will be applied to the 2007 database.
Do not change the Hurrtrak Online Active database and DO NOT remind me of this again

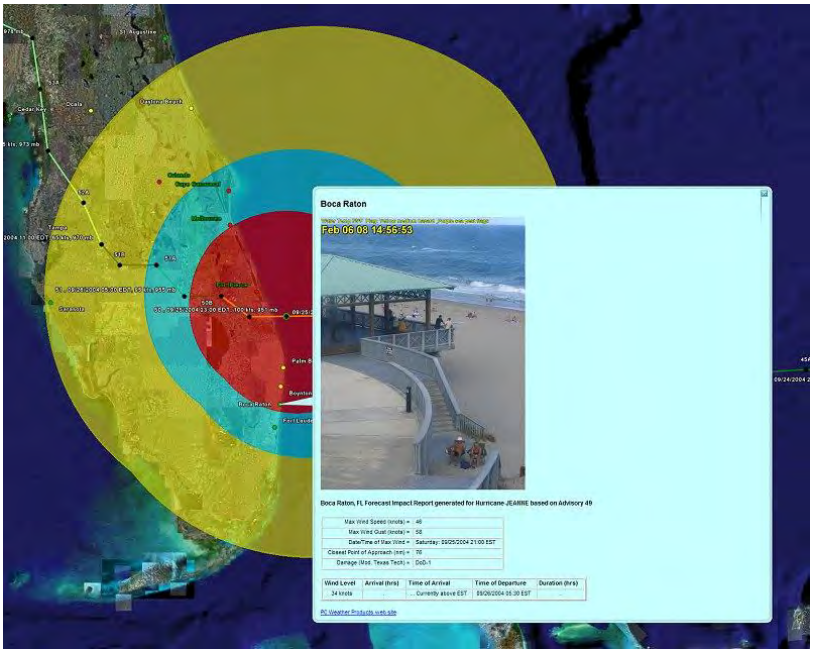
APPENDIX T2: Webcam/Location Images

When exporting the Summary impact report (tab) to Google Earth, you have the ability to view a *"live" web cam image* of the location being analyzed (if available).

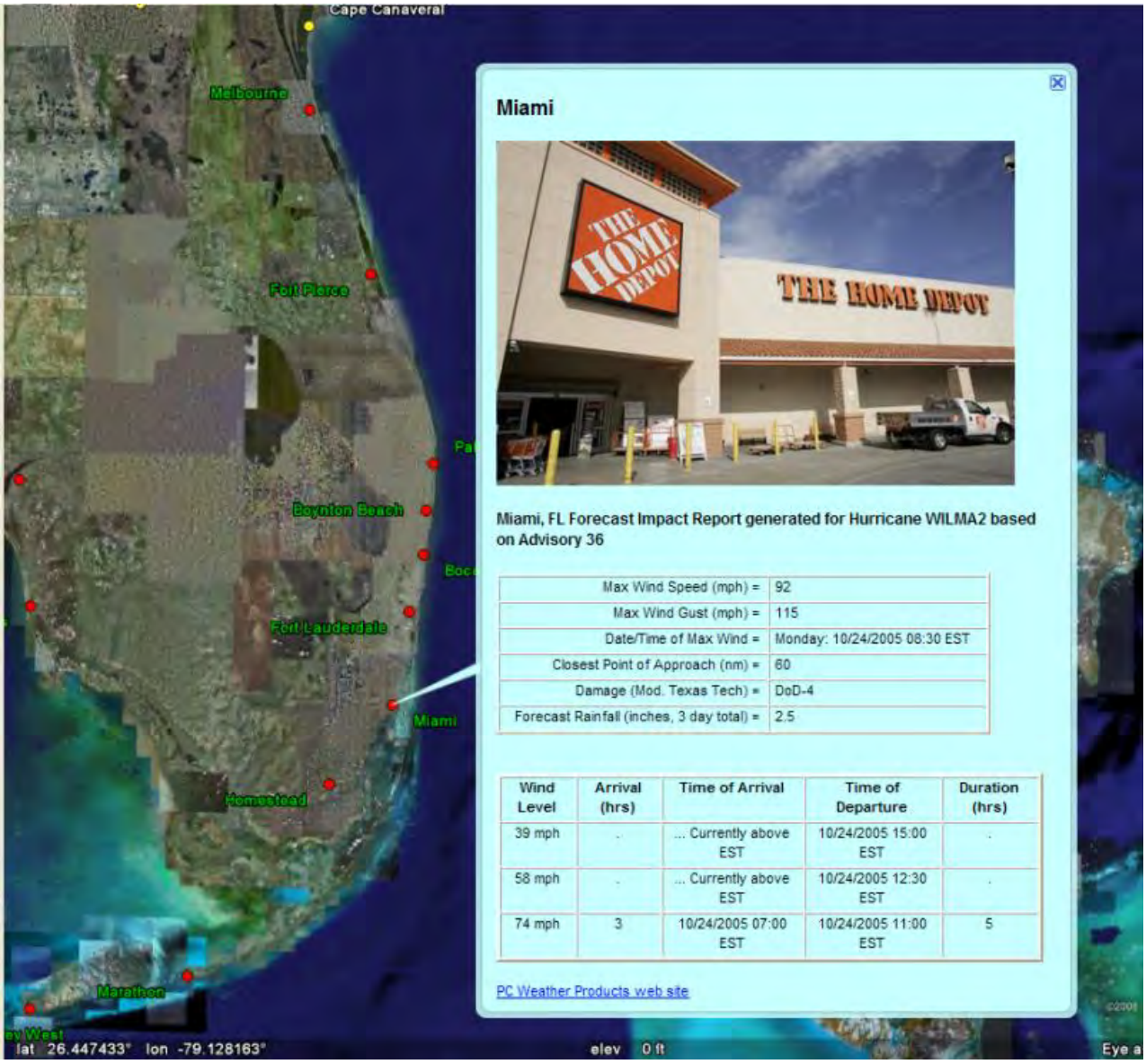
The system is pre-loaded with about 100 web cams links, but you can also select custom images (web or local) for specific locations in the location database. They just need to be in a graphic format (jpg, bmp, tif, gif). The custom images are defined in the System Setup - Location Maintenance option.


Location Maintenance
Exit Help Switch to legacy AWE data entry
Location Location Group County Zip Code
Search
Location Name: *island
Country/State: tx
Name State Latitude Longitude Plot size Plot Font Elevation Cross Wind Direction Tide Station Image Offshore Location
Brazos Island TX 26.03030 -97.15720 0
Galveston Island TX 29.22190 -94.90860 0 Arial, 8, Red, Bold http://webcams.galveston.com/docs/commodore2006/
High Island TX 29.56670 -94.39330 5
Honey Island TX 30.39530 -94.44060 5
Matagorda Island TX 28.22690 -96.64000 0
Mustang Island TX 27.73920 -97.13140 0
Padre Island TX 26.84420 -97.36750 0
Padre Island National Sea TX 26.95000 -97.38330 0
Pine Island TX 30.05337 -96.02863 5
San Jose Island TX 28.00000 -96.93330 0
South Padre Island TX 26.11089 -97.16716 5
Tiki Island TX 29.29870 -94.91417 5
Add Location
Advanced data entry
Update Table
View/Define Action Points for selected location
Delete Selected Location

The following Google Earth example shows the beach conditions at Boca Raton along with the forecast wind impact information for Wilma. (for this example, the image does not correspond to the same time frame as Wilma).



For some organizations this is a great way to associate forecast wind conditions to a real location. For example, a department store could associate static images of each store in the database. When the data is presented on Google Earth, the user can see both the location's forecast impact as well as an image of the site. This capability can be extended to private live web cams. A great example would be a lumber store showing a report for each of their impacted locations with a live image of what is the activity at the current time. A great way to present to management!



Miami

Miami, FL Forecast Impact Report generated for Hurricane WILMA2 based on Advisory 36

Max Wind Speed (mph) =	92
Max Wind Gust (mph) =	115
Date/Time of Max Wind =	Monday: 10/24/2005 08:30 EST
Closest Point of Approach (nm) =	60
Damage (Mod. Texas Tech) =	DoD-4
Forecast Rainfall (inches, 3 day total) =	2.5

Wind Level	Arrival (hrs)	Time of Arrival	Time of Departure	Duration (hrs)
39 mph	.	... Currently above EST	10/24/2005 15:00 EST	.
58 mph	.	... Currently above EST	10/24/2005 12:30 EST	.
74 mph	3	10/24/2005 07:00 EST	10/24/2005 11:00 EST	5

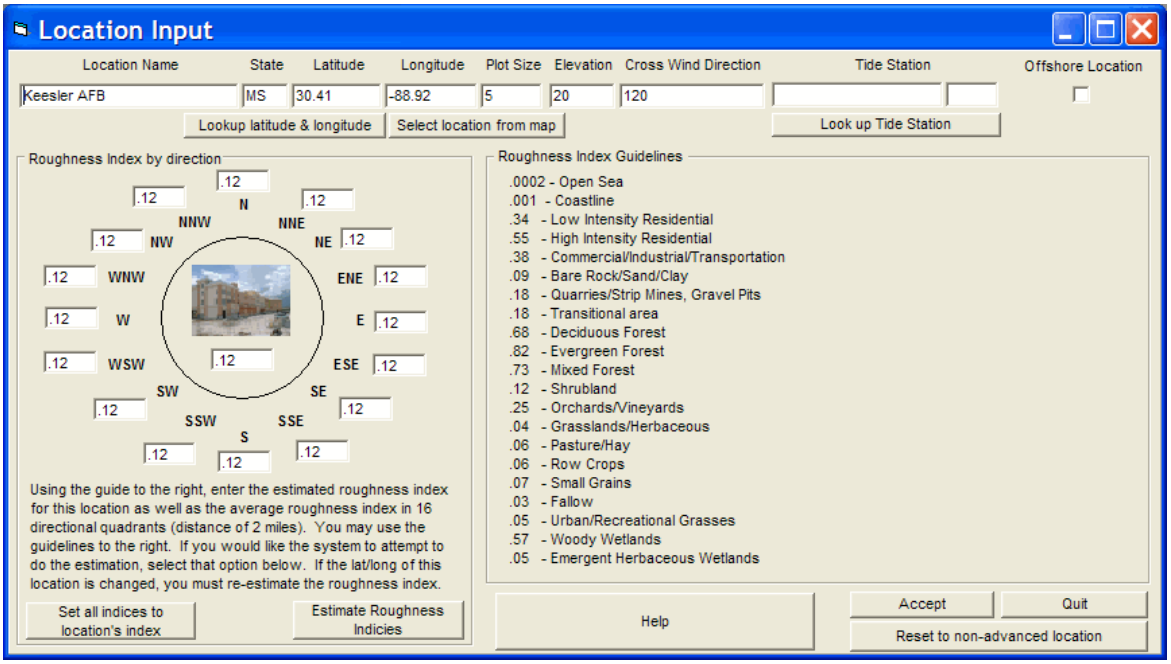
PC Weather Products web site

APPENDIX T3: Cross Wind Calculation, setup and use

Once the user defines the cross wind direction for any location, typically airport runways, the system is then able to include this information on the location wind impact report. In addition, with the ability to estimate wind speeds below 34 knots (from 25 knots - 34 knots), this is a valuable tool for aviation/airport facility users.

To define the cross wind direction, the user must select the location via the System Setup - Location Maintenance (Advanced Data Entry) option and then input the azimuth value (0-360) that represents the cross wind direction. For example, a runway running due north and south, would have a cross wind value of either 090 (due east) or 270 (due west). Either direction can be used, the only difference will be the sign.. i.e. If 090 is selected, then a -35 knot value would represent a westerly component of 35 knots while a +35 knot value would represent an easterly component of 35 knots.

The following Keesler AFB example shows how you would define the cross wind for a runway that runs 030 - 210. The value for the cross wind direction is defined as 120.



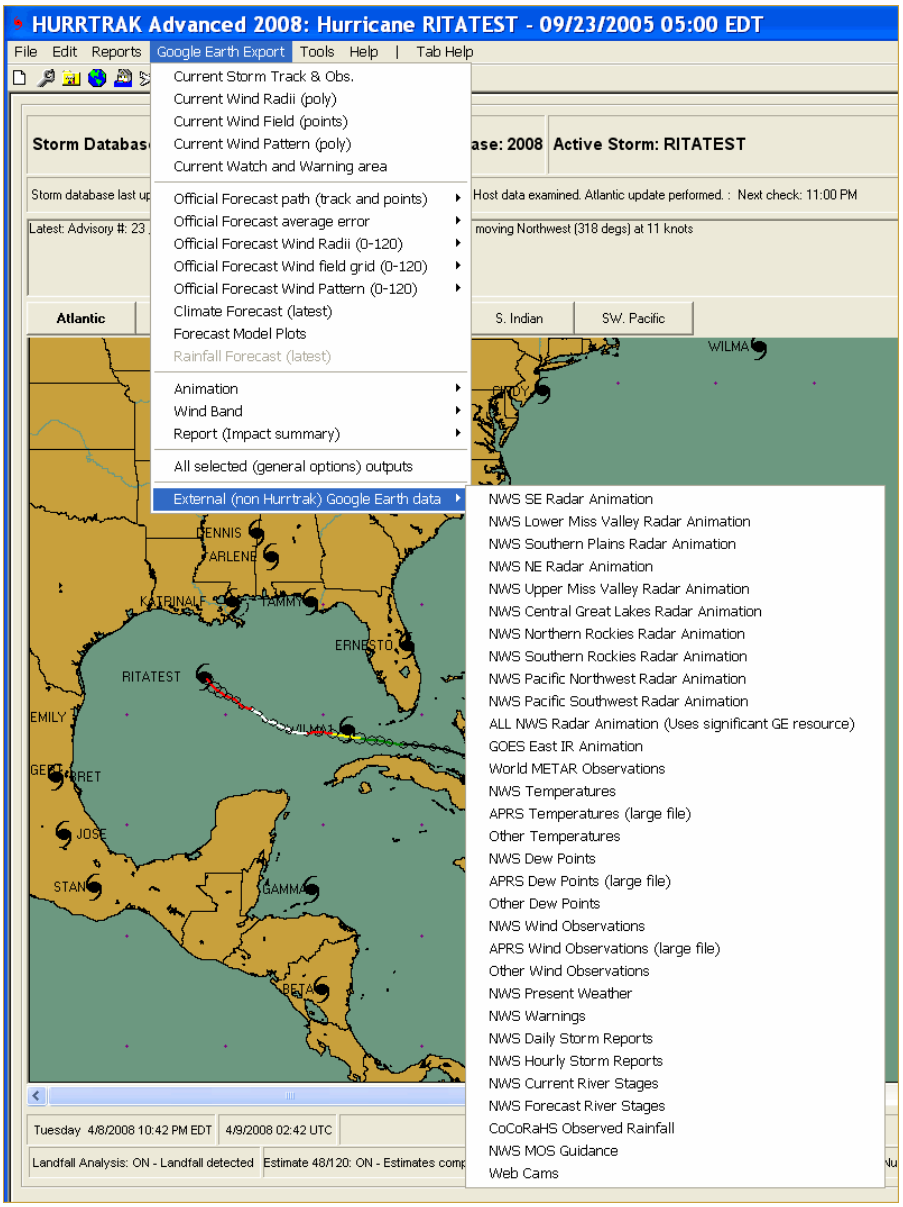
When a wind impact report is run for this location, it includes the component of cross winds, as well as the absolute estimate of wind speed. The report below shows the estimated winds for Keesler AFB (runway 030) during Katrina. Advanced Wind Estimation was not used for this report. The column for Cross Wind Component shows the sustained and wind gusts cross winds. Note, the first yellow row indicates when the cross runway wind gusts are expected to exceed 25 knots, while the red colored row indicates when the sustained cross runway component of wind is greater than 25 knots.

Keesler AFB, MS profile - Tropical Depression KATRINA

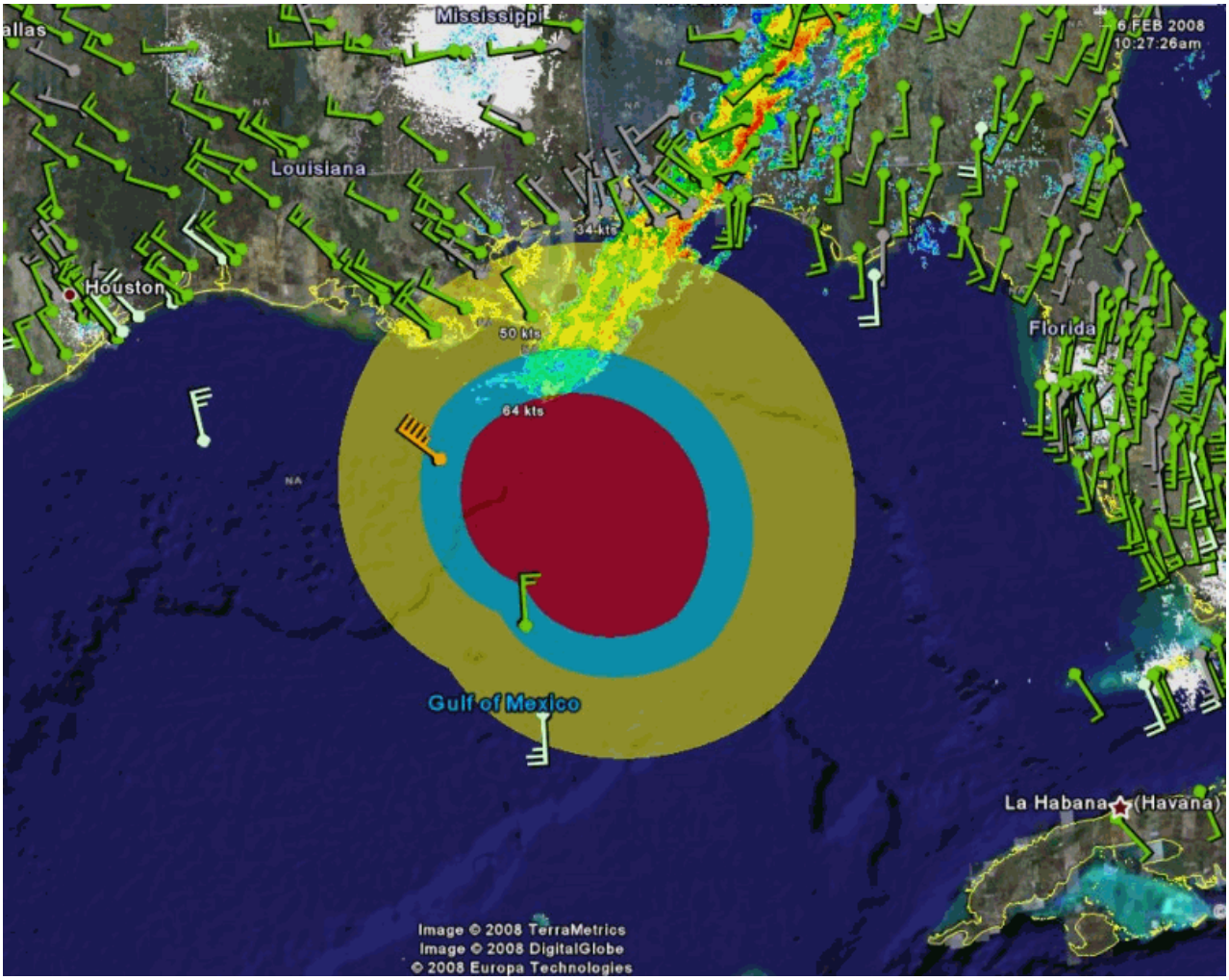
Date / Time	Time of day	Wind Speed (kts)	Wind Gusts (kts)	Wind Direction (degs.)		Cross Wind Component (kts)	Distance to 34 knot winds	Distance to 50 knot winds	Distance to 64 knot winds	Distance to center
Sunday: 08/28/2005 16:30 EDT		027	034	065	↙	015/020	0033 mi.	0111 mi.	0144 mi.	0246 mi.
Sunday: 08/28/2005 17:00 EDT		029	037	066	↙	017/022	0024 mi.	0105 mi.	0139 mi.	0243 mi.
Sunday: 08/28/2005 17:30 EDT		030	037	066	↙	018/022	0021 mi.	0101 mi.	0136 mi.	0240 mi.
Sunday: 08/28/2005 18:00 EDT		031	038	067	↙	019/023	0017 mi.	0098 mi.	0132 mi.	0236 mi.
Sunday: 08/28/2005 18:30 EDT		031	039	067	↙	019/023	0014 mi.	0094 mi.	0129 mi.	0233 mi.
Sunday: 08/28/2005 19:00 EDT		032	040	067	↙	019/024	0010 mi.	0091 mi.	0126 mi.	0229 mi.
Sunday: 08/28/2005 19:30 EDT		033	041	068	←	020/025	0006 mi.	0088 mi.	0122 mi.	0226 mi.
Sunday: 08/28/2005 20:00 EDT		034	042	068	←	021/026	0002 mi.	0084 mi.	0119 mi.	0222 mi.
Sunday: 08/28/2005 20:30 EDT		034	043	069	←	021/027		0082 mi.	0115 mi.	0218 mi.
Sunday: 08/28/2005 21:00 EDT		035	044	070	←	022/028		0081 mi.	0111 mi.	0213 mi.
Sunday: 08/28/2005 21:30 EDT		036	045	070	←	023/029		0078 mi.	0107 mi.	0208 mi.
Sunday: 08/28/2005 22:00 EDT		037	046	071	←	024/030		0078 mi.	0105 mi.	0205 mi.
Sunday: 08/28/2005 22:30 EDT		037	047	072	←	025/031		0076 mi.	0100 mi.	0200 mi.
Sunday: 08/28/2005 23:00 EDT		038	048	073	←	026/033		0074 mi.	0097 mi.	0196 mi.
Sunday: 08/28/2005 23:30 EDT		039	049	074	←	027/034		0069 mi.	0092 mi.	0191 mi.
Monday: 08/29/2005 00:00 EDT		040	049	075	←	028/035		0064 mi.	0088 mi.	0187 mi.
Monday: 08/29/2005 00:30 EDT		040	050	076	←	029/036		0060 mi.	0083 mi.	0182 mi.
Monday: 08/29/2005 01:00 EDT		041	051	076	←	029/037		0055 mi.	0078 mi.	0177 mi.
Monday: 08/29/2005 01:30 EDT		042	053	077	←	031/039		0050 mi.	0073 mi.	0172 mi.
Monday: 08/29/2005 02:00 EDT		043	053	078	←	032/039		0045 mi.	0068 mi.	0167 mi.
Monday: 08/29/2005 02:30 EDT		044	055	079	←	033/042		0039 mi.	0062 mi.	0162 mi.
Monday: 08/29/2005 03:00 EDT		044	055	080	←	034/042		0035 mi.	0058 mi.	0158 mi.
Monday: 08/29/2005 03:30 EDT		046	058	081	←	036/045		0025 mi.	0048 mi.	0149 mi.
Monday: 08/29/2005 04:00 EDT		048	060	082	←	038/047		0015 mi.	0038 mi.	0138 mi.
Monday: 08/29/2005 04:30 EDT		049	062	084	←	040/050		0005 mi.	0028 mi.	0128 mi.
Monday: 08/29/2005 05:00 EDT		053	066	085	←	043/054			0018 mi.	0119 mi.
Monday: 08/29/2005 05:30 EDT		056	070	086	←	046/058			0014 mi.	0114 mi.
Monday: 08/29/2005 06:00 EDT		059	073	087	←	049/061			0008 mi.	0108 mi.
Monday: 08/29/2005 06:30 EDT		062	078	088	←	053/066			0002 mi.	0104 mi.
Monday: 08/29/2005 07:00 EDT		064	080	089	←	055/069				0099 mi.
Monday: 08/29/2005 07:30 EDT		066	082	092	←	058/072				0090 mi.
Monday: 08/29/2005 08:00 EDT		069	087	095	←	063/079				0081 mi.
Monday: 08/29/2005 08:30 EDT		075	094	099	←	070/088				0073 mi.
Monday: 08/29/2005 09:00 EDT		081	101	105	←	078/098				0063 mi.
Monday: 08/29/2005 09:30 EDT		088	110	110	←	087/108				0058 mi.
Monday: 08/29/2005 10:00 EDT		095	118	117	↖	095/118				0052 mi.
Monday: 08/29/2005 10:30 EDT		099	123	125	↖	099/123				0047 mi.
Monday: 08/29/2005 11:00 EDT		102	127	135	↖	099/123				0043 mi.
Monday: 08/29/2005 11:30 EDT		100	125	149	↖	087/109				0040 mi.
Monday: 08/29/2005 12:00 EDT		095	119	164	↑	068/086				0041 mi.

APPENDIX T4: Using Google Earth External data

One of the options within the Google Earth Export option is "External (non Hurrtrak) Google Earth Data".


HURRTRAK Advanced 2008: Hurricane RITATEST - 09/23/2005 05:00 EDT
File Edit Reports Google Earth Export Tools Help | Tab Help
Current Storm Track & Obs.
Current Wind Radii (poly)
Current Wind Field (points)
Current Wind Pattern (poly)
Current Watch and Warning area
Official Forecast path (track and points)
Official Forecast average error
Official Forecast Wind Radii (0-120)
Official Forecast Wind field grid (0-120)
Official Forecast Wind Pattern (0-120)
Climate Forecast (latest)
Forecast Model Plots
Rainfall Forecast (latest)
Animation
Wind Band
Report (Impact summary)
All selected (general options) outputs
External (non Hurrtrak) Google Earth data
NWS SE Radar Animation
NWS Lower Miss Valley Radar Animation
NWS Southern Plains Radar Animation
NWS NE Radar Animation
NWS Upper Miss Valley Radar Animation
NWS Central Great Lakes Radar Animation
NWS Northern Rockies Radar Animation
NWS Southern Rockies Radar Animation
NWS Pacific Northwest Radar Animation
NWS Pacific Southwest Radar Animation
ALL NWS Radar Animation (Uses significant GE resource)
GOES East IR Animation
World METAR Observations
NWS Temperatures
APRS Temperatures (large file)
Other Temperatures
NWS Dew Points
APRS Dew Points (large file)
Other Dew Points
NWS Wind Observations
APRS Wind Observations (large file)
Other Wind Observations
NWS Present Weather
NWS Warnings
NWS Daily Storm Reports
NWS Hourly Storm Reports
NWS Current River Stages
NWS Forecast River Stages
CoCoRaHS Observed Rainfall
NWS MOS Guidance
Web Cams
Active Storm: RITATEST
Atlantic
S. Indian
SW. Pacific
WILMA
RITATEST
Tuesday 4/8/2008 10:42 PM EDT
4/9/2008 02:42 UTC

It allows the user to export National Weather Service and other weather information to display on Google Earth. This data includes radar, satellite, wind, temperature, dew point, river stages and more! When this information is displayed with Hurricane layers exported from the Hurrtrak system, the user is able to view both storm and "weather" information on the same Google Earth image. An example of hurricane wind radii superimposed with radar and wind data is shown below.



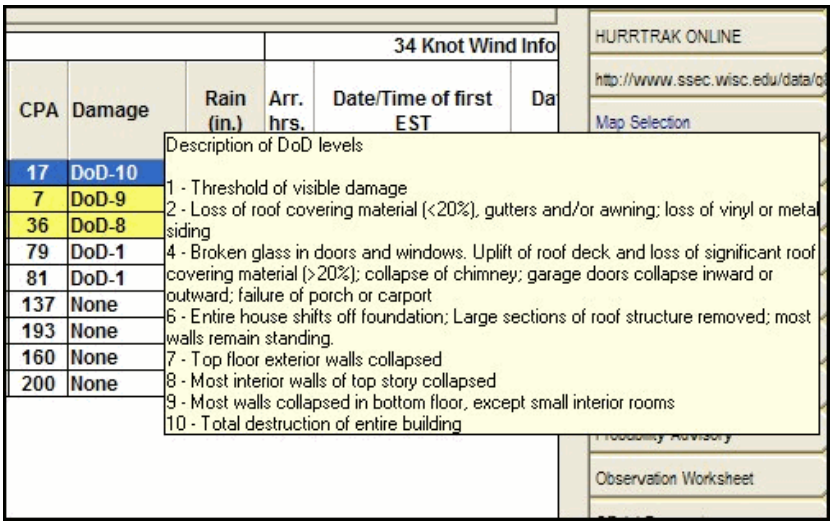
Please note that the sources of this weather information are external to PC Weather Products and its content may change over time. The system will automatically adjust to these changes and the dropdown menu may not change. We expect the amount of information available to increase as time goes on.

APPENDIX T5: Damage Comments

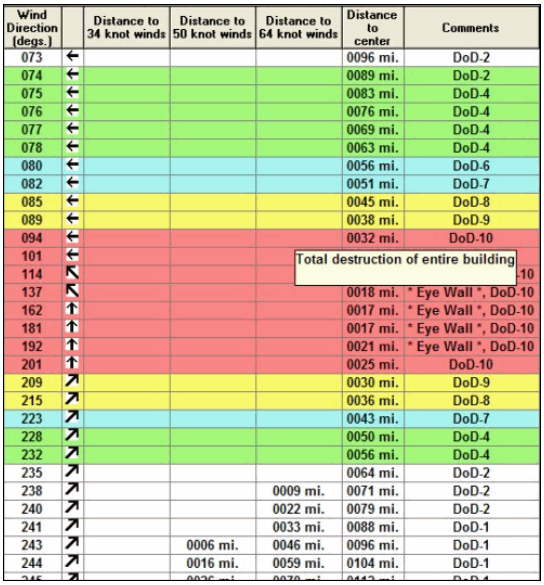
Prior to 2008, the "Damage" column on the location wind impact reports contained a damage description based on the *Saffir-Simpson* scale. While certainly a good measure of storm strength, we have found that the *Saffir-Simpson* scale is not necessarily tailored for damage at individual locations. In 2008, we introduced the ability for the user to choose an alternative scale which is based on observed damage in real situations. This scale is based on work done by the scientists at Texas Tech University and is modified somewhat for hurricanes.

The user can select the damage scale they would like to use via the User Preferences - Report/Impact Analysis option. The option selected will be reflected in the system on all wind impact summary and "hourly" reports.

While viewing a report, the user can display the entire scale by moving the mouse over the DAMAGE header.



Or to see the description of an individual damage level, point the mouse at that value.



The two scales available are shown below:

Saffir Simpson Scale:

Category One Hurricane (Sustained winds 74-95 mph [119-153 km/hr]).
Very dangerous winds will produce some damage
People, livestock, and pets struck by flying or falling debris could be injured or killed. Older (mainly pre-1994 construction) mobile homes could be destroyed, especially if they are not anchored properly as they tend to shift or roll off their foundations. Newer mobile homes that are anchored properly can sustain damage involving the removal of shingle or metal roof coverings, and loss of vinyl siding, as well as damage to carports, sunrooms, or lanais. Some poorly constructed frame homes can experience major damage, involving loss of the roof covering and damage to gable ends as well as the removal of porch coverings and awnings. Unprotected windows may break if struck by flying debris. Masonry chimneys can be toppled. Well-constructed frame homes could have damage to roof shingles, vinyl siding, soffit panels, and gutters. Failure of aluminum, screened-in, swimming pool enclosures can occur. Some apartment building and shopping center roof coverings could be partially removed. Industrial buildings can lose roofing and siding especially from windward corners, rakes, and eaves. Failures to overhead doors and unprotected windows will be common. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm. There will be occasional damage to commercial signage, fences, and canopies. Large branches of trees will snap and shallow rooted trees can be toppled. Extensive damage to power lines and poles will likely result in power outages that could last a few to several days. Hurricane Dolly (2008) is an example of a hurricane that brought Category 1 winds and impacts to South Padre Island, Texas.

Category Two Hurricane (Sustained winds 96-110 mph [154-177 km/hr]).
Extremely dangerous winds will cause extensive damage
There is a substantial risk of injury or death to people, livestock, and pets due to flying and falling debris. Older (mainly pre-1994 construction) mobile homes have a very high chance of being destroyed and the flying debris generated can shred nearby mobile homes. Newer mobile homes can also be destroyed. Poorly constructed frame homes have a high chance of having their roof structures removed especially if they are not anchored properly. Unprotected windows will have a high probability of being broken by flying debris. Well-constructed frame homes could sustain major roof and siding damage. Failure of aluminum, screened-in, swimming pool enclosures will be common. There will be a substantial percentage of roof and siding damage to apartment buildings and industrial buildings. Unreinforced masonry walls can collapse. Windows in high-rise buildings can be broken by flying debris. Falling and broken glass will pose a significant danger even after the storm. Commercial signage, fences, and canopies will be damaged and often destroyed. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near-total power loss is expected with outages that could last from several days to weeks. Potable water could become scarce as filtration systems begin to fail. Hurricane Frances (2004) is an example of a hurricane that brought Category 2 winds and impacts to coastal portions of Port St. Lucie, Florida with Category 1 conditions experienced elsewhere in the city.

Category Three Hurricane (Sustained winds 111-130 mph [178-209 km/hr]).
Devastating damage will occur
There is a high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) mobile homes will be destroyed. Most newer mobile homes will sustain severe damage with potential for complete roof failure and wall collapse. Poorly constructed frame homes can be destroyed by the removal of the roof and exterior walls. Unprotected windows will be broken by flying debris. Well-built frame homes can experience major damage involving the removal of roof decking and gable ends. There will be a high percentage of roof covering and siding damage to apartment buildings and industrial buildings. Isolated structural damage to wood or steel framing can occur. Complete failure of older metal buildings is possible, and older unreinforced masonry buildings can collapse. Numerous windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Most commercial signage, fences, and canopies will be destroyed. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days to a few weeks after the storm passes. Hurricane Ivan (2004) is an example of a hurricane that brought Category 3 winds and impacts to coastal portions of Gulf Shores, Alabama with Category 2 conditions experienced elsewhere in this city.

Category Four Hurricane (Sustained winds 131-155 mph [210-249 km/hr]).
Catastrophic damage will occur
There is a very high risk of injury or death to people, livestock, and pets due to flying and falling debris. Nearly all older (pre-1994) mobile homes will be destroyed. A high percentage of newer mobile homes also will be destroyed. Poorly constructed homes can sustain complete collapse of all walls as well as the loss of the roof

structure. Well-built homes also can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Extensive damage to roof coverings, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will break most unprotected windows and penetrate some protected windows. There will be a high percentage of structural damage to the top floors of apartment buildings. Steel frames in older industrial buildings can collapse. There will be a high percentage of collapse to older unreinforced masonry buildings. Most windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Nearly all commercial signage, fences, and canopies will be destroyed. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months. Hurricane Charley (2004) is an example of a hurricane that brought Category 4 winds and impacts to coastal portions of Punta Gorda, Florida with Category 3 conditions experienced elsewhere in the city.

Category Five Hurricane (Sustained winds greater than 155 mph [249 km/hr]).
Catastrophic damage will occur
People, livestock, and pets are at very high risk of injury or death from flying or falling debris, even if indoors in mobile homes or framed homes. Almost complete destruction of all mobile homes will occur, regardless of age or construction. A high percentage of frame homes will be destroyed, with total roof failure and wall collapse. Extensive damage to roof covers, windows, and doors will occur. Large amounts of windborne debris will be lofted into the air. Windborne debris damage will occur to nearly all unprotected windows and many protected windows. Significant damage to wood roof commercial buildings will occur due to loss of roof sheathing. Complete collapse of many older metal buildings can occur. Most unreinforced masonry walls will fail which can lead to the collapse of the buildings. A high percentage of industrial buildings and low-rise apartment buildings will be destroyed. Nearly all windows will be blown out of high-rise buildings resulting in falling glass, which will pose a threat for days to weeks after the storm. Nearly all commercial signage, fences, and canopies will be destroyed. Nearly all trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months. Hurricane Andrew (1992) is an example of a hurricane that brought Category 5 winds and impacts to coastal portions of Cutler Ridge, Florida with Category 4 conditions experienced elsewhere in south Miami-Dade County.

Texas Tech Study Scale (modified):

DOD*	Damage description
1	Threshold of visible damage.
2	Loss of roof covering material (<20%), gutters and/or awning; loss of vinyl or metal siding.
3	Broken glass in doors and windows.
4	Uplift of roof deck and loss of significant roof covering material (>20%); collapse of chimney; garage doors collapse inward; failure of porch or carport.
5	Entire house shifts off foundation.
6	Large sections of roof structure removed; most walls remain standing.
7	Exterior walls collapsed.
8	Most walls collapsed, except small interior rooms.
9	All walls.
10	Destruction of engineered and/or well constructed residence; slab swept clean.

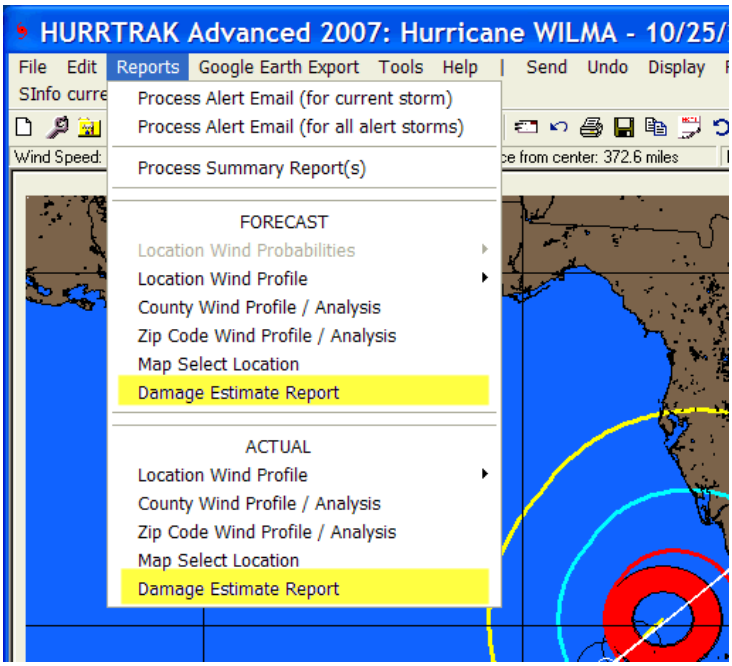
More information on the Texas Tech Study can be found at http://www.wind.ttu.edu/EFScale.pdf. Again, we use a modified version of this to account for hurricanes.

APPENDIX T6: Damage Estimate Report (Advanced only)

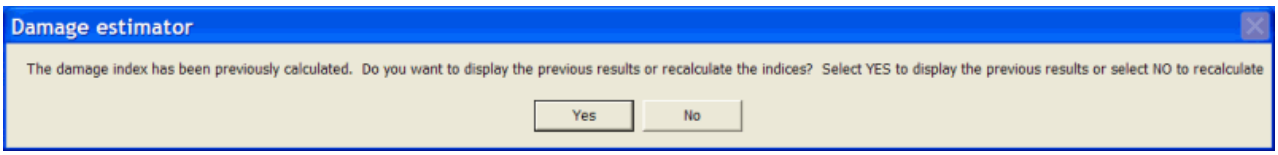
It is important that this report is only used as a guideline. The index values cannot and should not be correlated to the amount of insured losses.

Introduced in 2008 for the Hurrtrak Advanced system, the Damage Estimate Report is designed to analyze a storm's forecast overall damage potential. It can also be run after the storm has had an impact to help determine the extent of damage which may have occurred. The calculation of the Damage Estimate Index uses the force of the wind and the height of the estimated storm surge... along with the population of the area(s) affected and the real estate values in those areas. The absolute value of the index has no meaning and is used only to compare to past storm's index values. Since the population of the area is critical, it is possible to have a Category 5 storm impacting a low population density area have a Damage Index value lower than a Category 1 storm impacting a densely populated area.

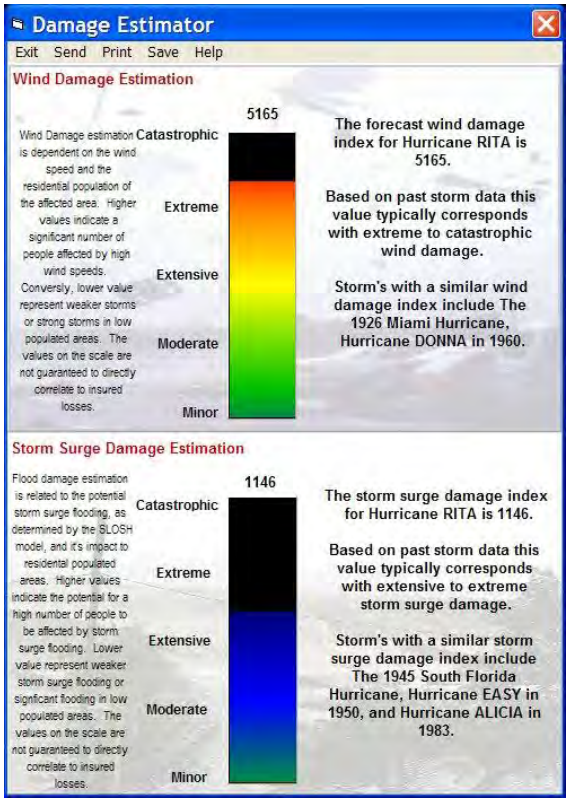
The report is run by selecting it from the dropdown Report menu. It can be run for the latest forecast or the actual observations of the storm



The system will check to see if this report has been run earlier. If so, it will allow the user to show the previous calculation. Viewing the previous calculation is recommended, unless storm forecast data (for the same advisory) or actual advisory data has changed for the storm.

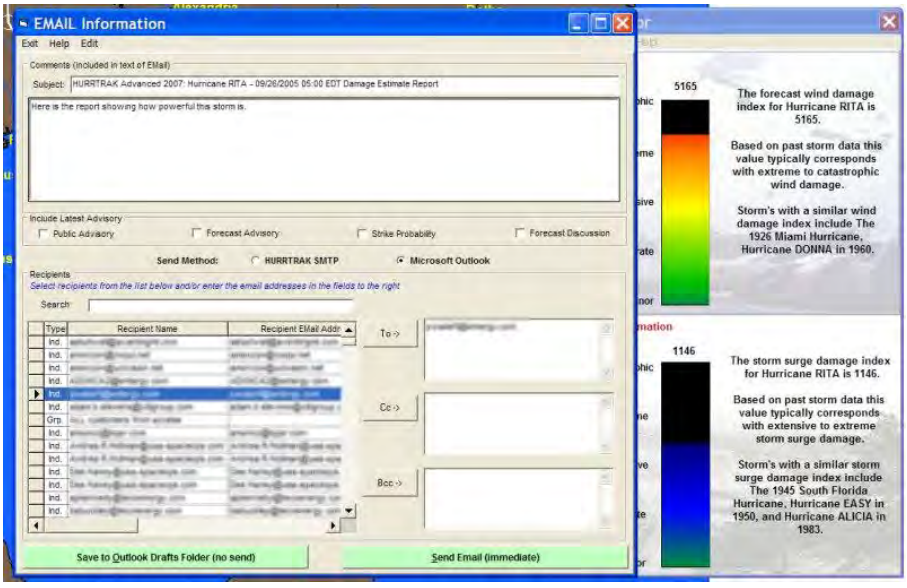

Damage estimator
The damage index has been previously calculated. Do you want to display the previous results or recalculate the indices? Select YES to display the previous results or select NO to recalculate
Yes
No

The damage report's performance varies greatly and can take anywhere from a few seconds to several minutes to complete a calculation. When complete, it will present the user with the following window:


Damage Estimator
Exit Send Print Save Help
Wind Damage Estimation
Wind Damage estimation is dependent on the wind speed and the residential population of the affected area. Higher values indicate a significant number of people affected by high wind speeds. Conversely, lower value represent weaker storms or strong storms in low populated areas. The values on the scale are not guaranteed to directly correlate to insured losses.
Catastrophic
Extreme
Extensive
Moderate
Minor
5165
The forecast wind damage index for Hurricane RITA is 5165.
Based on past storm data this value typically corresponds with extreme to catastrophic wind damage.
Storm's with a similar wind damage index include The 1926 Miami Hurricane, Hurricane DONNA in 1960.
Storm Surge Damage Estimation
Flood damage estimation is related to the potential storm surge flooding, as determined by the SLOSH model, and it's impact to residental populated areas. Higher values indicate the potential for a high number of people to be affected by storm surge flooding. Lower value represent weaker storm surge flooding or significant flooding in low populated areas. The values on the scale are not guaranteed to directly correlate to insured losses.
Catastrophic
Extreme
Extensive
Moderate
Minor
1146
The storm surge damage index for Hurricane RITA is 1146.
Based on past storm data this value typically corresponds with extensive to extreme storm surge damage.
Storm's with a similar storm surge damage index include The 1945 South Florida Hurricane, Hurricane EASY in 1950, and Hurricane ALICIA in 1983.

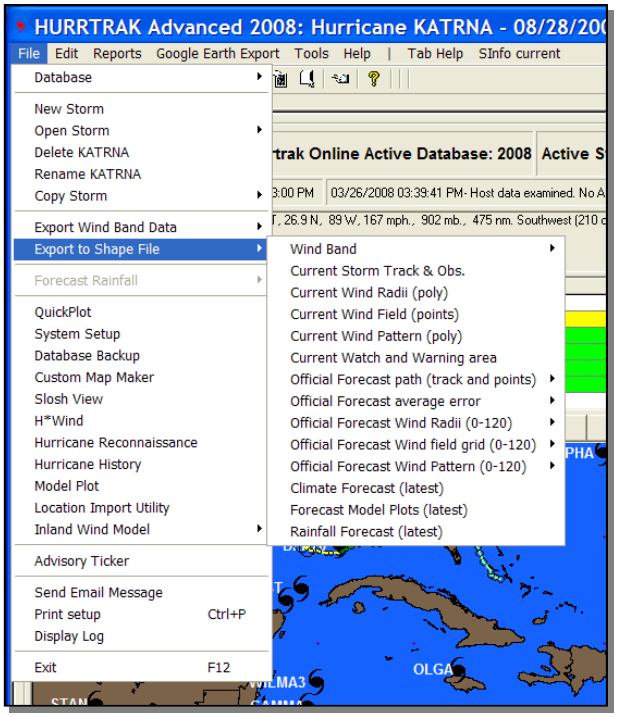
As you can see, the report calculates two indexes: one for wind damage and the other for Storm Surge Damage. It is important to separate these two factors, as some locations are more prone to storm surge flooding than other areas... at the same level of wind. The report's descriptive scale is meant to only give a general idea of how the index value compares to past storms. The difference in actual damage may not be significant for storms that are described as extreme and extensive, but you can be fairly confident that a storm with an extreme rating will be more damaging than one with a minor or moderate one. Finally, the current storm is compared to past storms with "similar" index values. The report will show up to three comparative storms for both wind and storm surge.

The information can be shared via email, printed output, etc.


EMAIL Information
Exit Help Edit
Comments (included in text of Email)
Subject: HURRTRAK Advanced 2007: Hurricane RITA – 09/26/2005 05:00 EDT Damage Estimate Report
Here is the report showing how powerful this storm is.
Include Latest Advisory
Public Advisory
Forecast Advisory
Strike Probability
Forecast Discussion
Send Method:
HURRTRAK SMTP
Microsoft Outlook
Recipients
Select recipients from the list below and/or enter the email addresses in the fields to the right
Search:
Type
Recipient Name
Recipient EMail Addr
To ->
Cc ->
Bcc ->
Save to Outlook Drafts Folder (no send)
Send Email (immediate)
5165
The forecast wind damage index for Hurricane RITA is 5165.
Based on past storm data this value typically corresponds with extreme to catastrophic wind damage.
Storm's with a similar wind damage index include The 1926 Miami Hurricane, Hurricane DONNA in 1960.
1146
The storm surge damage index for Hurricane RITA is 1146.
Based on past storm data this value typically corresponds with extensive to extreme storm surge damage.
Storm's with a similar storm surge damage index include The 1945 South Florida Hurricane, Hurricane EASY in 1950, and Hurricane ALICIA in 1983.

APPENDIX T7: Shape File Export

Hurrtrak Advanced has the ability to export several types of storm graphic and report information to an ESRI™ Shape type GIS file. Graphic-type Shape files for the currently loaded storm can be created by selecting the FILE – Export to Shape File menu option.

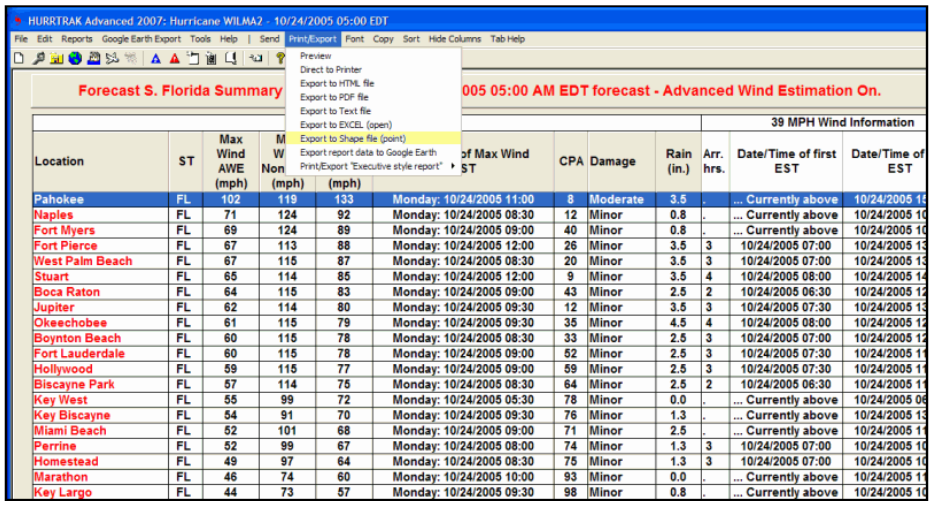


The data that can be selected includes:

- **Wind Bands (Polygon):** A polygon Shape file containing the actual and/or forecast wind bands for a storm.
- **Current Storm Track and Observation (Polyline and Point):** This action creates two Shape files… one that shows the actual storm track, and a second Shape file containing a storm's observation points.
- **Current Wind Radii (Polygon):** This contains a polygon-type Shape file that describes the wind radii of a storm's 34, 50 and 64 knot wind areas.
- **Current Wind Field (Point)**: This option creates a point-type Shape file containing a grid of the current wind pattern across a storm. The grid size is determined via the GIS Export tab of the General User Options.
- **Current Watch and Warning area (Polyline):** This creates multiple polyline-type Shape files which represent the current tropical watches and warnings.
- **Official Forecast Path track and points (Polyline and Point):** This action creates two Shape files… one that shows the forecast storm track, and a second Shape file containing the official forecast verification points.
- **Official Forecast Average Error (Polygon):** This action creates a Shape file that represents the forecast storm track average error.
- **Official Forecast Wind Radii (Polygon):** This contains a polygon-type Shape file that describes the wind radii of a storm's 34, 50, and 64 knot wind areas at a specific forecast hour.
- **Official Forecast Wind Field grid (Point):** This option creates a point-type Shape file containing a grid of the wind pattern across a storm at a specific forecast hour. The grid size is determined via the GIS Export tab of the General User Options.
- **Climate Forecast (Polyline) –** This option creates a Shape file that represents the current climate forecast.
- **Forecast Model Plots (Polyline) –** This option creates a Shape file that contains multiple polylines which represent the latest forecast model plots.

- **Rainfall forecast (Polygon):** This option creates 3 polygon-type Shape files. One for each 24 hour forecast period, out to 3 days.

There is one additional type of Shape file export which is associated with the Location, County, or Zip Code impact report (example show below).

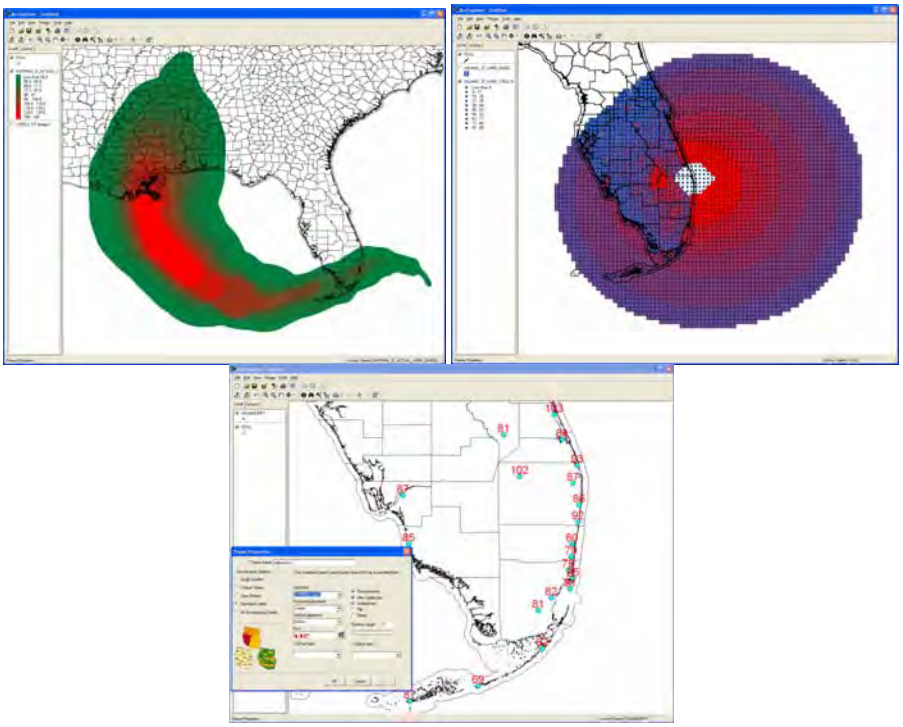

HURRTRAK Advanced 2007: Hurricane WILMA2 - 10/24/2005 05:00 EDT
File Edit Reports Google Earth Export Tools Help | Send Print/Export Font Copy Sort Hide Columns Tab Help
Preview
Direct to Printer
Export to HTML file
Export to PDF file
Export to Text file
Export to EXCEL (open)
Export to Shape file (point)
Export report data to Google Earth
Print/Export "Executive style report"
Forecast S. Florida Summary
005 05:00 AM EDT forecast - Advanced Wind Estimation On.

Location	ST	Max Wind AWE (mph)	M W Non (mph)	(mph)	of Max Wind ST	CPA	Damage	Rain (in.)	39 MPH Wind Information Arr. hrs.	Date/Time of first EST	Date/Time of EST
Pahokee	FL	102	119	133	Monday: 10/24/2005 11:00	8	Moderate	3.5	.	... Currently above	10/24/2005 1
Naples	FL	71	124	92	Monday: 10/24/2005 08:30	12	Minor	0.8	.	... Currently above	10/24/2005 1
Fort Myers	FL	69	124	89	Monday: 10/24/2005 09:00	40	Minor	0.8	.	... Currently above	10/24/2005 1
Fort Pierce	FL	67	113	88	Monday: 10/24/2005 12:00	26	Minor	3.5	3	10/24/2005 07:00	10/24/2005 1
West Palm Beach	FL	67	115	87	Monday: 10/24/2005 08:30	20	Minor	3.5	3	10/24/2005 07:00	10/24/2005 1
Stuart	FL	65	114	85	Monday: 10/24/2005 12:00	9	Minor	3.5	4	10/24/2005 08:00	10/24/2005 1
Boca Raton	FL	64	115	83	Monday: 10/24/2005 09:00	43	Minor	2.5	2	10/24/2005 06:30	10/24/2005 1
Jupiter	FL	62	114	80	Monday: 10/24/2005 09:30	12	Minor	3.5	3	10/24/2005 07:30	10/24/2005 1
Okeechobee	FL	61	115	79	Monday: 10/24/2005 09:30	35	Minor	4.5	4	10/24/2005 08:00	10/24/2005 1
Boynton Beach	FL	60	115	78	Monday: 10/24/2005 08:30	33	Minor	2.5	3	10/24/2005 07:00	10/24/2005 1
Fort Lauderdale	FL	60	115	78	Monday: 10/24/2005 09:00	52	Minor	2.5	3	10/24/2005 07:30	10/24/2005 1
Hollywood	FL	59	115	77	Monday: 10/24/2005 09:00	59	Minor	2.5	3	10/24/2005 07:30	10/24/2005 1
Biscayne Park	FL	57	114	75	Monday: 10/24/2005 08:30	64	Minor	2.5	2	10/24/2005 06:30	10/24/2005 1
Key West	FL	55	99	72	Monday: 10/24/2005 05:30	78	Minor	0.0	.	... Currently above	10/24/2005 0
Key Biscayne	FL	54	91	70	Monday: 10/24/2005 09:30	76	Minor	1.3	.	... Currently above	10/24/2005 1
Miami Beach	FL	52	101	68	Monday: 10/24/2005 09:00	71	Minor	2.5	.	... Currently above	10/24/2005 1
Perrine	FL	52	99	67	Monday: 10/24/2005 08:00	74	Minor	1.3	3	10/24/2005 07:00	10/24/2005 1
Homestead	FL	49	97	64	Monday: 10/24/2005 08:30	75	Minor	1.3	3	10/24/2005 07:00	10/24/2005 1
Marathon	FL	46	74	60	Monday: 10/24/2005 10:00	93	Minor	0.0	.	... Currently above	10/24/2005 1
Key Largo	FL	44	73	57	Monday: 10/24/2005 09:30	98	Minor	0.8	.	... Currently above	10/24/2005 1

When selected, the content of this report is exported into a point-type Shape file. Each point represents a row/location on the report, and all of the report's data fields (max wind, date/time of Max Wind, etc.) are contained within the Shape file.

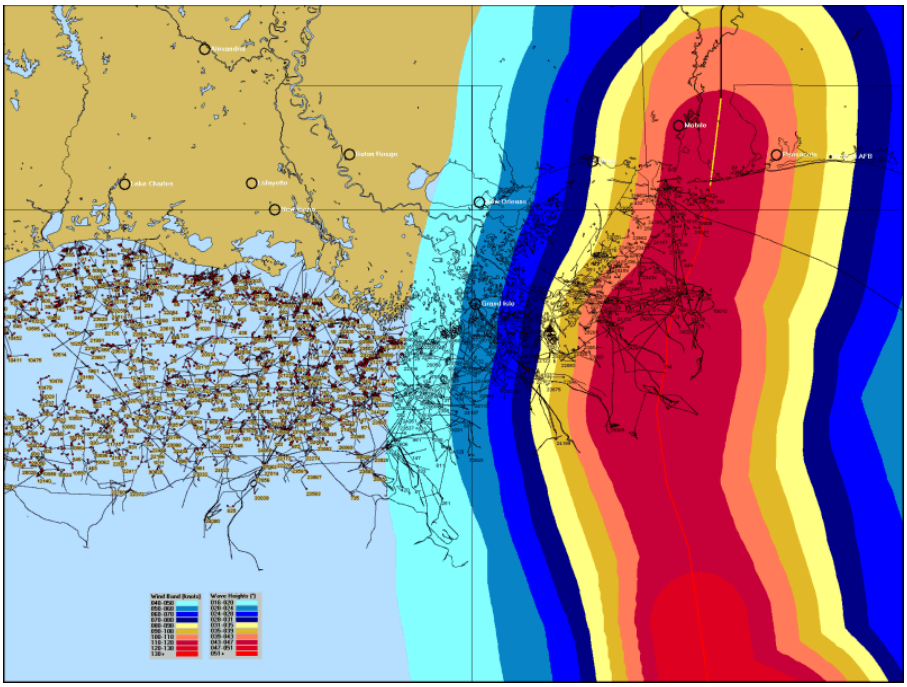
All of the exported Shape files can be viewed/analyzed using your GIS software (separate from HURRTRAK). While we do not recommend or support any particular GIS software, you should be able to download ArcExplorer for free from the ESRI™ Web Site.

Some examples of data being displayed on ArcExplorer © ESRI, are shown below.

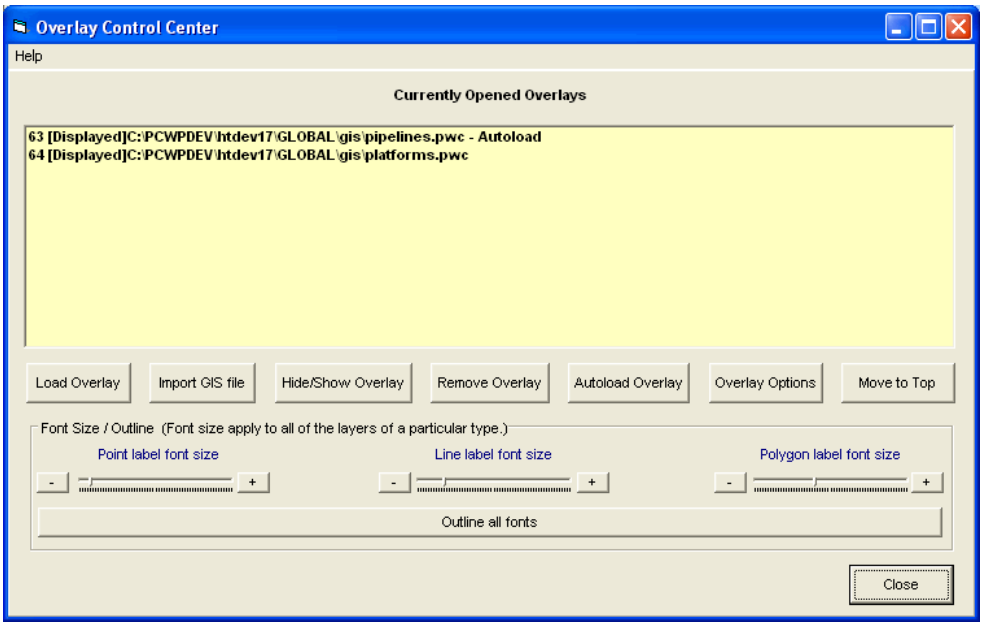


APPENDIX T8: Overlay Control Center

The system includes the ability to display a shape file layer on top of a map used for tracking. The shape file is converted to a proprietary format (PWC) used by the Hurrtrak system. Once converted, it can quickly be loaded without conversion in the future. The image below shows platforms and pipelines in the Gulf of Mexico along with the forecast wind speeds and wave heights from Hurricane Ivan.



From the Map Selection Tab, when the Display Overlay Control Center is selected, the following screen is displayed:

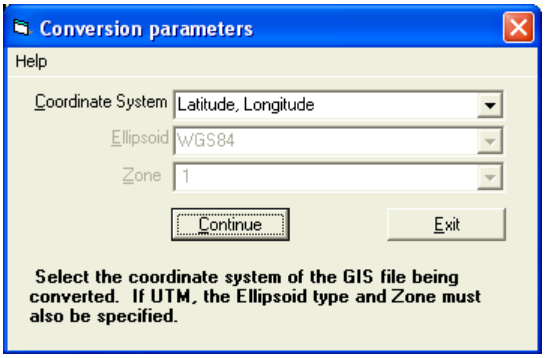


The screen displays the overlays currently loaded, as well as several options.

These options include:

Load Overlay – This loads an existing PWC file.

Import GIS File – This option will convert a Shape™ file into PWC format and load it. The user must have some knowledge of the Shape file, particularly its coordinate system, Ellipsoid and UTM zone (if applicable).



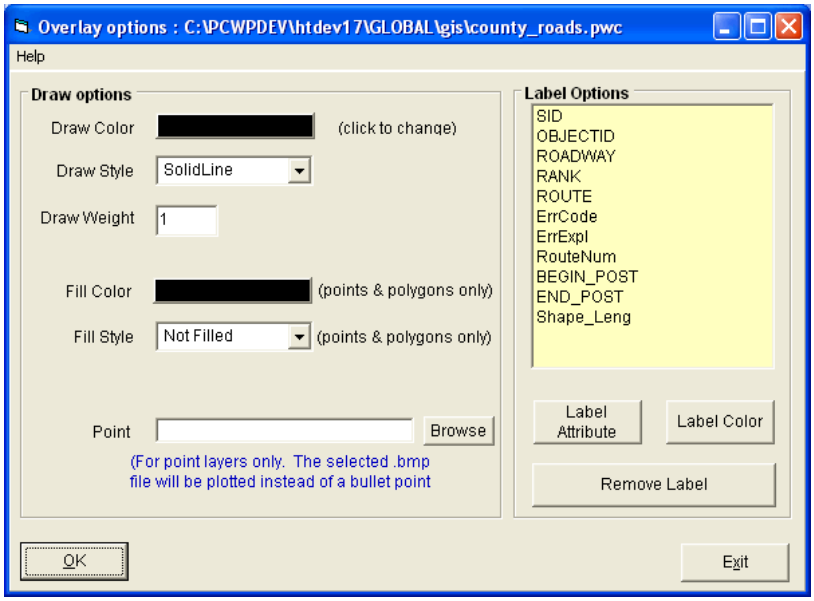
Hide/Show Overlay – This option will change the layer from being visible to being invisible, but keeps it loaded at all times.

Remove Overlay – This option will remove the overlay.

Autoload overlay – This option will instruct the system to automatically load this layer the next time HURRTRAK system starts up. Otherwise, it will not be loaded.

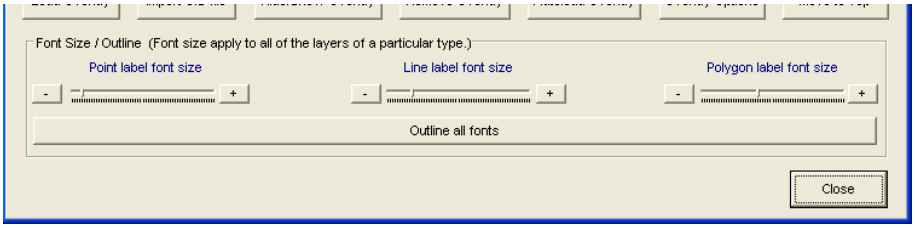
Move to Top – This option will take the currently selected overlay and make it the top layer.

Overlay Options – This option will display a new set of screens that allow the user to control the way a specific layer is displayed, colors and any labeling.



It also will allow the user to select a small .bmp file to represent points in a GIS layer. (i.e. an oil platform icon for that type of asset)

At the bottom of the main overlay control screen, there are additional options which allow the user to control the different types of layer's font size and appearance.


Font Size / Outline (Font size apply to all of the layers of a particular type.)
Point label font size
Line label font size
Polygon label font size
Outline all fonts
Close

While different layers can be displayed differently, the font size for one type of layer is all the same. i.e. the font for multiple point layers is the same size. Label colors can be assigned by layer.

Finally, the "outline font" option applies to all layer labels and the background outline is the same as the "land" color.

NOTE: You can download some PWC files which show Oil/Gas Platforms, Pipelines, Pipe Points and Blocks as well as US State Borders and US Highways/Interstates, and manmade Dams from our web site at http://www.pcwp.com/ftp/pwc.zip .

APPENDIX U: Network Installations

The network installation of Hurrtrak is “network unaware”.. i.e., the system does not know it is running on a network. The server install puts all of the application’s executables and data onto its system, while the workstation install installs the necessary windows components and defines the server executables as shortcuts. The only exception is the street database, which is installed on both server and workstation.

Network Considerations & Directory Structure

The following diagrams describe how the network administrator should set up the authorities on the network directories. This model assumes that the "signon required" field is set ON in the System setup (SYSTEM) program.

Directory Structure and authorities:

SYSOP

Directory	
/APPL	Read
/APPL/data	Create, Read, Update, Delete
/APPL/database	Create, Read, Update, Delete
/APPL/database/user	Read, Update
/APPL/dem	Read, Update
/APPL/maps1400	Create, Read, Update, Delete
/APPL/maps1024	Create, Read, Update, Delete
/APPL/maps640	Create, Read, Update, Delete
/APPL/Temp	Create, Read, Update, Delete
/APPL/n	Create, Read, Update, Delete
/APPL/nlcd	Read
/APPL/sats	Create, Read, Update, Delete
/APPL/slosh	Read, Update
/APPL/skins	Read
/APPL/streetdata	Read
/APPL/miscgraphics	Read
/APPL/reconbmp	Read

Regular User with Update option = "Y"

Directory	
/APPL	Read
/APPL/data	Create, Read, Update, Delete
/APPL/database	Read, Update
/APPL/database/user	Read, Update
/APPL/dem	Read, Update
/APPL/maps1400	Create, Read, Update, Delete
/APPL/maps1024	Create, Read, Update, Delete
/APPL/maps640	Create, Read, Update, Delete
/APPL/Temp	Create, Read, Update, Delete
/APPL/n	Create, Read, Update, Delete
/APPL/nlcd	Read
/APPL/sats	Create, Read, Update, Delete
/APPL/slosh	Read, Update
/APPL/skins	Read
/APPL/streetdata	Read
/APPL/miscgraphics	Read
/APPL/reconbmp	Read

Regular User with NO update capabilities

Directory	
/APPL	Read
/APPL/data	Read, Update
/APPL/database	Read
/APPL/database/user	Read, Update
/APPL/dem	Read, Update
/APPL/maps1400	Create, Read, Update, Delete
/APPL/maps1024	Read
/APPL/maps640	Read
/APPL/Temp	Create, Read, Update, Delete
/APPL/n	Create, Read, Update, Delete
/APPL/nlcd	Read
/APPL/sats	Create, Read, Update, Delete
/APPL/slosh	Read, Update
/APPL/skins	Read
/APPL/streetdata	Read
/APPL/miscgraphics	Read
/APPL/reconbmp	Read

Directory Contents:

/APPL- System Executables, strike probability DAT files and other system files
/APPL/n** - Database History Files
/APPL/data - Miscellaneous system data files
/APPL/database - MS Access (MDB) files
/APPL/database/user- User Preferences Access File MDB
/APPL/dem - Digital Elevation Model Data
/APPL/maps1024 - 1400x1180 maps
/APPL/maps1024 - 1024x768 maps
/APPL/maps640 - 640x480 maps
/APPL/nlcd – National Land cover database
/APPL/sats – Satellite images
/APPL/slosh - SLOSH data files
/APPL/skins – Application Skin files
/APPL/Temp - Temporary files, Pre-Compress/Repair copies of .MDB files
/APPL/streetdata - Street Atlas data used in SLOSHView program
/APPL/reconbmp - Collection of bitmaps used in the recon program
/APPL/miscgraphics - Collection of bitmaps used in the system

***** The APPL for HURRTRAK EM/Pro is **HTEM2012**
The APPL for Global EM/Pro is **GTEM2012**
The APPL for HURRTRAK RM/Pro is **HTRM2012**
The APPL for Global RM/Pro is **GTRM2012**
The APPL for Hurrtrak Advanced is **ADV2012**

****** n = 1 for HURRTRAK, n=1 through 6 for Global

Full create / update / read access for all users must be given to .LDB files in the database and database/user subdirectory.

APPENDIX V: Global Tracker Considerations

Users of the system have the ability to track and analyze storms from around the world. The 6 tropical basins are Atlantic, East/Central Pacific, Western (North) Pacific, Northern Indian Ocean, Southern Indian Ocean and Southwest Pacific. When tracking global systems, there are several important considerations.

Hurrtrak Online

There are a few differences on how the global data is processed by Hurrtrak Online. The three data sources for tropical cyclone data are

1. National Hurricane Center (NHC) – Covers the Atlantic and Eastern Pacific basin.
2. Central Pacific Hurricane Center (CPHC) – Covers the Central Pacific from 140 degrees West to 180 degrees.
3. Joint Typhoon Weather Center (JTWC) – Covers the Western Pacific, Indian Oceans and Southwest Pacific.

The hurricane center data is retrieved and processed by PC Weather Products servers and then made available to its users. The client software (that's you) then retrieves the data from our servers and updates your local storm database. If there is a problem with the released advisories, we take every measure to correct these problems to make sure the data gets to the user correctly. In addition, the data is mirrored on a second backup site. For this reason, the data from the Atlantic and Eastern/Central Pacific is more complete and very reliable.

The JTWC data is handled a little differently. PCWP servers download and save key data from the JTWC and then make that available to its users. The client software then retrieves this key data from our servers. While this approach has worked well in the past, there are several opportunities for problems that the user needs to be aware of.

1. JTWC server problems – If the JTWC servers go down, no data will be available for the period of outage. There is nothing we can do at this point, but wait until they fix the problems.
2. JTWC format changes – Since the server software contains program logic to decode the JTWC advisories, if they change the format unexpectedly or make an error, the server software will not update correctly. If it is an error, it will be corrected (hopefully) with the next advisory. If the change is permanent, we will have to modify our server software.

One other important item has to do with the download of watches and warnings. Watches and warning areas are only downloaded for the Atlantic basin and only when they affect US coastal areas. This is because this is the only area for which standard watch and warning breakpoints are defined. The user can manually input other watch and warning areas via the edit function.

Program Function differences

The following functions are not available to the Global user tracking storms outside of the Atlantic.

1. Strike Probability Analysis – Strike probabilities cannot be calculated outside of the Atlantic.
2. County & Zip Code Reports – The county and zip code report data is only available for the US and PR/USVI, so analysis in the Pacific is not feasible.
3. Forecast Rainfall – Rainfall data is only available for the US.
4. Model Forecast – Hurricane forecast model data is only available for the Atlantic and Eastern Pacific.
5. RECON – Hurricane reconnaissance information is only available for the Atlantic.

6. SLOSH – Slosh flood analysis is only available for the coastal Atlantic, Bahamas, PR and USVI.
7. Advanced Wind Estimation – The NLCD database used for advanced wind estimation covers only the US Mainland.

Recommended user preferences

Most of the user preferences are the same for the Atlantic only version and the Global version. There are two areas that need consideration.

1. Hurrtrak Online Preferences – Global users have additional options regarding how often to check for new data. It is recommended that, if you have an always-on Internet connection, you turn on the options to check for Atlantic, Eastern/Central Pacific and Western Pacific/Indian Ocean. Set the intervals to 10-15 minutes for the Atlantic and 30-60 minutes for the Western Pacific. Of course, if you have no interest in a geographical area, do not check that option.
2. Automation Alert (advanced) Preferences – Since the JTWC data comes in differently than the other data, you may need to change how you define new data. If you are NOT automatically sending email alert and/or summary reports, set the new data option to ANY. If you are sending email alerts, automatics summary reports or other automations, then set the new data option to FORECAST ADVISORY. This is always issued for all global areas and will prevent you from sending out multiple messages for each advisory.

APPENDIX W: Technical Support

PC Weather Products provides free support via our Web Site and EMAIL. HURRTRAK Advanced customers also receive telephone support at no extra charge. In order to continue to provide support at no additional cost, please make sure to follow the order of support shown below.

Before contacting us, please make sure you have done the following:

1. Review the system help text (this document)

2. Review the system documentation

3. Review the training modules at www.pcwp.com/training.html

4. Check the FAQ on our web site at http://www.pcwp.com

If these methods do not provide an answer, please contact PCWP via EMAIL:
Email support requests to: support@pcwp.com

Hurrtrak Advanced customers may call us: (770) 953-3506 or by FAX at (770) 952-2540.

Email is the preferred method of support.

APPENDIX X: Software License & Services Agreement

HURRTRAK Software License & Services Agreement

CAREFULLY READ THIS LIMITED LICENSE TO USE THE SOFTWARE AND SERVICES OF PC WEATHER PRODUCTS, INC. ("COMPANY"), WHICH IS GRANTED ON THE CONDITION THAT YOU ACCEPT AND COMPLY WITH ALL OF THE PROVISIONS CONTAINED HEREIN. BY DOWNLOADING, INSTALLING, ACCESSING OR USING SUCH SOFTWARE OR SERVICES, YOU ACCEPT AND AGREE TO BE LEGALLY BOUND BY ALL PROVISIONS HEREIN, BOTH FOR YOURSELF AND ALL PERSONS USING AND ACTING WITH, FOR OR THROUGH YOU. IF YOU DO NOT AGREE TO BE SO BOUND, THEN YOU MAY NOT USE THE SOFTWARE OR SERVICES. THE COMPANY RESERVES THE RIGHT, AT ANY TIME IN ITS SOLE DISCRETION, TO MODIFY, SUSPEND OR TERMINATE THE CONTENTS HEREIN AND ALL, OR PART, OF THE SOFTWARE AND SERVICES.

1. **Orders.** Customer agrees to purchase the Software and Services specified on any Customer submitted Order accepted by Company. Customer shall pay the cost and bear the risk through receipt for all deliveries, including without limitation insurance, shipping, handling, etc.

2. **Rates & Fees.** Fees and rates applicable to any Order shall be as set forth by the Company on its price quote and do not include sales, usage, excise, property or other taxes, which amounts Customer shall pay. During any renewal terms for a Service, the applicable fees and rates for such Service shall be those stated in the then-current Company price quote. A daily late charge of the lesser of: (i) 1.5% per month, or (ii) the maximum rate per month permitted by law, shall be applied to, and due from, Customer for all amounts due but not paid by their respective due date.

3. **Delivery.** Ordered Software shall be either accessible for download by Customer via the Internet or delivered to Customer at the ship to address specified on the Order. Services shall be provided to Customer either via the Internet or such other method as Company may specify.

4. **License Grant.** Customer is granted a non-exclusive, non-transferable and limited license to use the purchased Software (which includes object code and documentation for the specific version so purchased along with such updates provided, if any, unless so provided under separate or superseding terms) solely for your internal business purposes either: (i) on the single workstation on which the Software is first installed, or (ii) where site/network license is purchased, solely on such equipment and for such number of concurrent users and level of access as specified on the applicable Order. Such right to use includes a right to copy or print the results and displays generated by the Software from your permitted use for your internal business or personal use. Additionally, Customer may reproduce the Software solely for backup and archival purposes; provided, all such copies made must retain all copyright and proprietary notices and may only be put into use temporarily on such backup workstation in the event the initial workstation on which the Software is licensed malfunctions or is no longer in use.

5. **Reservation of Rights.** All title, property and intellectual property rights (other than those granted in Section 4), and other interests in, to and under the Software and Services is reserved by, and shall remain exclusively with, the Company. Customer shall not disassemble, decompile, re-engineer, modify, tamper with, misuse or create derivative works of the Software or Services. The Software may have asset protection devices that suspend or restrict installation, reproduction and use if used or moved in an unauthorized manner.

6. **Confidentiality.** The Software and Services are, and do contain, valuable confidential information and trade secrets of Company and its licensors that Customer shall protect with the same care and diligence (but no less than reasonable) that it uses for its own confidential information. During the term of this Agreement and for the longer of: (i) five (5) years from its termination, or (ii) the date on which any item is no longer a trade secret under applicable law, Customer shall not disclose, distribute, assign, pledge, transfer, sub-license or make accessible to others either the Software or Services without the prior written consent of the Company.

7. **Government Use & Exporting.** The Software and Services are provided with RESTRICTED RIGHTS. Use, duplication or disclosure by the Government is subject to restrictions set forth in subparagraphs (a) through (d) of the Commercial Computer Software--Restricted Rights at FAR 52.227-19 when applicable, or in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.227-7013, and in similar clauses in the NASA FAR supplement, as applicable. Manufacturer is PC Weather Products, Inc., PO Box 72723, Marietta, GA 30007. Customer shall be responsible for complying with all applicable trade regulations and laws, both foreign and domestic, regarding its export and use of the Software.

8. **Support & Updates.** Unless, and except as expressly stated in an applicable Order and the then-current Support Policy of the Company, the Company shall have no obligation to support, update, maintain, enhance or further develop the Software or Services, whether in whole or in part. Failure to implement updates or corrections provided by the Company, as well as the alteration or combination of the Software or Services with any product or service not provided or authorized by Company, is at Customer's sole risk and may render the Software or Services unusable or nonconforming to applicable documentation. In no event will the Company have any obligation to support or update any Software or Service for which updates have been made available but not been applied.

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13. **Limitations of Liabilities and Remedies**. No failure or omission by Company in the performance of any obligation under this arrangement will be deemed a breach of its obligations nor create any liability if the same arises, or will arise, from any cause or causes beyond its reasonable control, including (without limitation): acts of God; acts, orders or omissions of any government or like regulator; hurricane, wind, flood, storm, lightening, fire, earthquake or like natural disaster; acts of terror, war, riot, or rebellion; Internet brown out; acts or omissions of Customer or its representatives; or failure of suppliers or communications services. THE MAXIMUM LIABILITY OF COMPANY TO CUSTOMER FOR ANY DIRECT DAMAGES ARISING FROM THE SOFTWARE, SERVICES OR ARRANGEMENTS ARISING HEREUNDER SHALL NOT EXCEED THE LESSER OF THE FEES PAID BY CUSTOMER TO THE COMPANY: (I) DURING THE CURRENT CALENDAR YEAR FOR SUCH ITEM THAT DIRECTLY CAUSED THE LIABILITY THAT AROSE, OR (II) DURING THE SPECIFIC CALENDAR MONTH FOR SUCH SERVICE THAT DIRECTLY CAUSED THE LIABILITY THAT AROSE. TO THE MAXIMUM EXTENT PERMITTED BY LAW, THE COMPANY SHALL NOT BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL, OR PUNITIVE DAMAGE, HOWEVER CAUSED, INCLUDING BUT NOT LIMITED TO LOSS OF BUSINESS, PROFITS, DATA, OR OTHER COMMERCIAL OR ECONOMIC LOSS ARISING OUT OF OR

FROM THE SOFTWARE, SERVICES OR ARRANGEMENTS ARISING HEREUNDER EVEN IF THE COMPANY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

14. **Indemnification.** Customer agrees to defend any suit or proceeding brought against and will protect, indemnify, save and hold harmless the Company its licensors, subsidiaries and affiliates (along with their respective directors, officers, employees and agents) from and against any and all suits, actions, claims, proceedings, damages, losses, costs and expenses (including reasonable attorneys' fees) relating to or arising out of: (i) Customer's license, use or misuse of the Software or Services, or (ii) any actions, decisions or omissions involving the use of the Software and Services or any results from their use; provided, however, such obligation to indemnify will not apply to such matters arising solely from the negligent acts of the Company or the infringement of copyrights, trademarks or patents of any third party involving the Software as originally provided and properly used.

15. **Term & Termination.** The provisions herein, including the right of Customer to use the Software and Services, shall commence upon acceptance and are effective until terminated. Customer may terminate at any time with notice to the Company. Unless otherwise terminated early, the term of each Service Ordered shall automatically expire one (1) year from the Order Date of such Service on the applicable Order. Company may terminate any Service, including Support, at any time, with or without cause, upon one month notice to Customer or general publication. Termination may also occur, at Company's discretion, if Customer either: (i) fails to comply with any provision herein, (ii) fails to timely pay in full for any item specified on an Order, or (iii) becomes insolvent, bankrupt, in receivership or subject to either an assignment for the benefit of creditors or the appointment of a trustee or receiver, with such termination being effective as of the later of: (a) the date of the occurrence that gave rise to such termination, and (b) such date as specified by the Company. Upon termination or expiration, Customer agrees to promptly return to Company (or at Company's direction destroy) all copies of the Software, including backup copies, provided or used by Customer. Customer will not be relieved of its obligation to pay any amounts owed to Company that became due prior to the effective date of termination. The provisions of sections 5-7, 10, and 12-16 shall survive any termination or expiration regardless of the reason.

16. **General.** This document, along with any corresponding Order accepted by the Company and any applicable published policies and specifications of the Company, constitutes the complete and exclusive statement of the agreement of the parties hereto with respect to the license and use of the Software and Services, superseding all prior and concurrent agreements, promises, proposals, representations and warranties, whether oral or written, with respect to the subject matter hereof. The headings used in this Agreement are for convenience only and shall not create any rights or obligations or affect the meaning or interpretation of this agreement. No amendment, change, modification or revision of this document or any Order is permitted or accepted unless agreed to in writing by an authorized representative of the Company. No provision hereof shall be deemed waived or modified except in a written addendum signed by an authorized representative of the Company. If any term of this document is determined to be invalid or unenforceable pursuant to applicable law, then the invalid or unenforceable provision will be deemed superseded by a valid, enforceable provision that most closely matches the intent of the original provision and the remainder of the document shall continue in effect. Customer may not sell, assign or transfer this agreement or any or its rights or obligations hereunder without the prior written consent of Company. This Agreement shall be deemed to have been made in, and shall be construed pursuant to the laws of, the State of Georgia, USA without reference to conflict of laws principles thereof. The application of the United Nations Convention of Contracts for the International Sale of Goods is expressly excluded. The parties expressly consent and agree that the proper jurisdiction and venue of any action regarding this matter shall be the State or Federal courts located in or about Cobb County, Georgia, USA. Any claim or action against the Company arising from or under this agreement or its subject matter must be brought within twelve (12) months of the time it first accrues or shall otherwise be deemed waived and time barred. The Company shall be entitled to recover from Customer such reasonable attorneys' fees and court or collection costs that it incurs in enforcing its rights hereunder. Customer acknowledges that the Company may incur irreparable harm in the event of a breach of this Agreement by it and therefore agrees that the Company shall have the right, among other remedies available to it, to take all reasonable steps to protect all proprietary and confidentiality rights and interests, including (without limitation) by suspending or terminating Customer's use of the Software or Services (in either case without liability to Customer) or seeking injunctive relief and other like legal and equitable remedies. Any notice required or given in connection with this arrangement shall be in writing and shall be given to the appropriate party by personal delivery or by certified mail; postage prepaid, or recognized overnight delivery services. Notice to Company shall be to PC Weather Products, Inc., Attn.: Legal, PO Box 72723, Marietta, GA 30007.

APPENDIX Z: FAQ & TROUBLESHOOTING

FOR THE LATEST VERSION OF THIS INFORMATION, PLEASE EXAMINE THE FAQ AT OUR WEB SITE (WWW.PCWP.COM)

What is the best video mode to use?
Which screen resolution to use is a matter of personal preference. In order to see the main menu window, as well as the other system windows, we recommended that you run the system in 1024x768 or greater. We also recommend true color (24 bit or higher). We operationally use a 30" monitor at 2560x1600.

Is there some easy way of setting the "current" advisory for an earlier point in a storm's history? All attempts are giving me a map with the last plot of the storm.
Yes, the Post Storm Analysis feature under User Preferences or Tools will do this.

How does the Estimate of 48, 72, 96 and 120-hour, 34 and 64-knot wind fields work?

Since the National Hurricane Center does not provide the forecast wind field information for the areas of 64-knot winds and in the 96 and 120- hour outlook... the 34, 50-knot wind areas...., we allow the user to turn on the option which will force the system to estimate these wind fields. A series of algorithms are utilized to come up with a best guess of what these wind fields will be. Please remember, these are only estimates based on storm trend and climatology.

How does the Landfall Recognition work?

Since landfall will often be in-between forecast verification times, this presents a problem of linearly extrapolating forecast winds between forecast points. I.E. if a storm's 36-hour forecast is to be 100 miles offshore with top winds of 125 MPH and its 48-hour position is forecast to be 100 miles inland with top winds of 75 MPH, then a linear extrapolation would calculate a 100 MPH storm at landfall. Turning Landfall Recognition ON will force the system to maintain the intensity of the storm until landfall. Landfall is defined (by the system) as 5 contiguous hours over land.

Can I put the images from the system in a public forum, like a web site?
The license agreement for this software does **NOT** allow for its images to be placed in a public forum, such as a BBS, WEB Site, ON-Air, etc. If you have a desire to do so, please contact PC Weather Products to discuss separate license agreement possibilities.

Will this run on a Network?
Yes, contact PC Weather Products for more information on the Network version.

How can I get the data in the tracking system into the historical database for use by the Hurricane History program?
You can't. The historical database is based on "official" storm track information provided by the NHC (Atlantic / East Pacific). In addition, the data is pre-processed to allow for rapid information access.

Why should I create separate storm databases in system setup?
While separate storm databases are not required, they are recommended in order to segregate storms by year. Creating a separate storm database for 2011, 2012 ,etc. should make management of storm data much easier. Remember, the system's default database after installation is the "PAST" database. If you wish to segregate this year's storms, create a new database right after you install.

Why would I want to turn database security ON?
Unless you have the LAN version of the system, you probably don't. Turning on security forces the user to sign on before starting any of the system's programs.

How should I utilize 'Location Groups' and why are there predefined groups (like Email Alert, small

map and large map group)?
Location groups are a powerful addition to the tracking system's capabilities. Not only can you display the locations within a group on the tracking charts, they are also used to determine which locations will be analyzed in the batch location analysis and with the strike probabilities report. The small map group can be used as the set of locations you want to display whenever you are using a small map (<20 degrees wind). The large map group, as you might expect, can be used when displaying locations on a large map, like the whole Atlantic, etc.. The Email Alert location group is used when creating a map for an email alert message. There is also a new location group called “Base Locations” that controls what appears on the Risk-Alert tab.

What is the significance of the value of the flood index?
The value of the index is determined by the strength of the onshore wind flow for that area. For a complete discussion of this topic, see Flood Index Summary on page 290.

In the systems, there are options to display SLOSH data. What is this data?
The SLOSH data is data compiled by the NWS to determine the potential extent of coastal flooding due to a storm surge. For a complete discussion of this topic, see SLOSH Summary on page 293

TROUBLESHOOTING - PROGRAM

My tab labels are not showing unless I select that tab.
This is a video driver problem. You can try setting the tab labels to a different location. If that does not work, you should replace your windows video driver with a newer one. These are usually available from your PC vendor or via Internet support sites.

Why does my entire window become filled with a solid color while performing certain functions like wind band analysis and plotting the storm track?
If you are experiencing color flooding problems, it is likely that you have a bug in your video driver. You should replace your windows video driver with a newer one. These are usually available from your PC vendor or via Internet support sites.

When I email reports with the imbedded text option, the format of the report gets all messed up.
When viewing emailed reports that have column type data, the receiver must change his email program viewing font to a non-proportional type (courier, for example). A better solution is to email the report as HTML or PDF.

When I attempt to start the system, I am getting an error message that says "... is not a MS Access Database". What's wrong? It worked fine the last time I used it.
This error message indicates that the main system database file(s) have become corrupted. This is typically due to a unplanned shutdown, power outage, etc. To correct this, run a database repair. If this does not work, then restore from the latest backup. If this is not available, then the only option is to reinstall the entire system. Note: most of the time the file that became corrupt is the userdb.mdb file. If you replace just that file, you may be up and running without having to reinstall.

I downloaded the latest information from HURRTRAK ONLINE, but the watch and warning areas are not available. Why?
The watch and warning data is typically released a few minutes after the Forecast Advisory.

I add new Locations in System Setup, but they are not appearing in the correct position on the tracking charts. Why?
You have probably entered latitude and longitude in degrees and minutes; make sure you enter it in degrees and tenths of a degree. To convert to tenths, divide the minutes by 60. I.E. 29 degrees 30 minutes is 29.5 degrees.

TROUBLESHOOTING - ONLINE - Internet Connection

In addition to reviewing this topic, please review the FAQ at our web site (www.pcwp.com) to see the latest

information. If you cannot get this feature working properly, you may want to consider using the direct dial option instead.

Everything's been working fine for a while, and now all of a sudden I am getting errors.
Do a cold reboot (shutdown and turn the PC off). You'd be amazed at how many Windows problems get fixed this way.

I am using a direct connection to the Internet through my organization's server, but I keep getting error messages.
If you are connecting to the Internet through your organization's server there are two potential obstacles.

1. Proxy Server - If you are using a non-authenticating proxy server, contact your network administrator and find out what proxy server parameters you need to enter into the Internet setup option.
2. Authenticating Proxy Server - Some organizations operate "Authenticating" Proxy Servers which require additional passwords to get data from the internet. The HURRTRAK ONLINE INTERNET system will not operate with these types of proxy servers. Contact your system administrator to request that an authentication exception be defined just for the purposes of retrieving data from http://www.pcwp.com/data. Then, define the proper parameters as shown in the Internet setup option.